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NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

L9507

NATURAL RESONANCES OF SLOTTED
CYLINDER CONFIGURATIONS

by

Keith O. Lyles

March 1991

Thesis Advisor: Lee, Hung-Mou

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Electromagnetic sensitivity of systems from intentional apertures such as radar antennas and optical sensors are generally well studied and understood. Characteristics of electromagnetic energy that leaks into an enclosed volume through unintentional apertures such as seams at bolted, riveted, or screwed joints are not understood analytically or from a practical standpoint. Measurement of the internal electromagnetic field of axially slotted cylinders of varying slot widths provides a simple method for the analysis of internal coupled fields. Experimental results of resonance measurements and theoretical computations conducted on slotted cylinder configurations are presented. These measurements provide practical information on the resonance characteristics of different slotted cylinder configurations. Analysis of the data will provide insight into the phenomena of E-field coupling and natural resonances of slotted cylinders.

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Natural Resonances of Slotted Cylinder Configurations

by

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Lieutenant Commander, United States Navy
B.S., Southern University, 1978

Submitted in partial fulfillment of the
requirements of degree of

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ABSTRACT

Electromagnetic sensitivity of systems from intentional apertures such as radar antennas and optical sensors are generally well studied and understood. Characteristics of electromagnetic energy that leaks into an enclosed volume through unintentional apertures such as seams at bolted, riveted, or screwed joints are not understood analytically or from a practical standpoint. Measurement of the internal electromagnetic field of axially slotted cylinders of varying slot widths provides a simple method for the analysis of internal coupled fields. Experimental results of resonance measurements and theoretical computations conducted on slotted cylinder configurations are presented. These measurements provide practical information on the resonance characteristics of different slotted cylinder configurations. Analysis of the data will provide insight into the phenomena of E-field coupling and natural resonances of slotted cylinders.

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I. INTRODUCTION

A. BACKGROUND

Modern strategic weapon systems generally have tightly-sealed metallic enclosures with the only intentional apertures being radar antennas or apertures for optical sensors. The electromagnetic sensitivity of systems from the intentional apertures is generally well studied and characterized. However, the characteristics of the electromagnetic energy that leaks through unintentional apertures such as seams at bolted, riveted, or screwed joints are not as well understood either analytically or from a practical standpoint. Measurement of fields coupled into tight metallic enclosures often show high-Q resonances at microwave frequencies. Mathematical models for coupling at these frequencies that neglect metallic losses predict that the fields inside the cavities become stronger as the size of the aperture is decreased [Ref. 1]. When losses in the aperture and/or cavity are added, the fields inside the cavity are reduced and smaller apertures couple weaker fields [Ref. 2].

In order to examine the phenomenon of electromagnetic coupling, the theoretical model of an infinitely-long, axially-slotted cylinder with an E polarized incident plane wave is utilized. This model provides a simple two-dimensional structure which includes an aperture and a cavity that are amenable to relatively simple measurement of the internal electromagnetic field. Although aperture resonances cannot occur for this configuration, internal cavity resonances can occur, and the amplitude as a

function of the electrical diameter of the cylinder and angular opening of the axial slot can be measured. The effect of frequency and angular slot variations on the internal resonance mode characteristics and the associated Q of this theoretical model are the major areas of concentration in this research.

The theoretical model is approximated for experimental purposes by placing a slotted cylinder between the plates of a parallel plate waveguide excited in the transverse electromagnetic mode (TEM) mode. Between parallel plates, a finite cylinder images to an infinite cylinder. Because of the absence of aperture resonances, the experimental configuration does not model all aspects of the problem; nevertheless, this configuration does model important aspects of the interaction between the electromagnetic fields to a well-shielded enclosure with those on the interior.

B. PURPOSE OF THE THESIS

The goal of this thesis is to design and construct a test structure suitable for the measurement of natural resonances and internal coupled fields of circular cylindrical cavity. Secondary research goals include the comparison of measured resonance data to theoretical computations and the determination of the Q of each cylinder from the resonance data.

E-field coupling is also examined for the interior of the aperture. An approximate solution is derived to link the measured amplitude data of the slotted cylinders to theoretical results. Comparison of these results is conducted to determine if a correlation exists.

The data collected and analyzed during this research will provide practical insight in the study of E-field coupling and natural resonance phenomenon that occurs for these configurations.

C. TEST STRUCTURE DESIGN AND METHODOLOGY

The methodology in the design of the test structure is based on the theory of the parallel plate waveguide and circular cavity resonator. The test structure consists of two equally-sectioned aluminum sheets for the parallel plates and four axially-slotted cylinders for imaging an infinitely long cylinder. Specific geometry and fabrication of the test structure are addressed in Chapter II. Because the slotted cylinders are placed between parallel plates, the height of the cylinders determines the separation required between the plates. The TEM mode is the dominant mode of propagation for the parallel plate waveguide; therefore, distance separation between the two plates is determined utilizing the cutoff frequency for parallel plate transverse electric (TE) and transverse magnetic (TM) modes. The cutoff frequency is expressed as Equation 1-1.

$$f_c = \frac{n}{2d\sqrt{\mu\epsilon}} \tag{1-1}$$

where : n = 0,1,2,.... propagation mode

d = separation between plates

μ = permeability of the material ($4\pi \times 10^{-7}$)

ϵ = permittivity of the material (8.854×10^{-12})

Since a cutoff frequency of about 3 GHz is desired, the distance is determined to be 5.08 cm (2.00 inches).

Avoidance of the TE_{nml} modes of the circular cavity resonator is also a concern. Because of the symmetry of the incident and the excited (coupled) field, only the resonant modes and frequencies of the excited internal fields are of interest. Since the incident wave has an E-field parallel to the axis of the cylinder, only the TM_{nml} modes for a circular cavity resonator are excited.

Aluminum was chosen for the construction of the parallel plates and brass tubing for the construction of the slotted cylinders. To ensure the desired mode of propagation is achieved for the parallel plates, the aluminum sheets are dimensioned 4 feet by 8 feet. To minimize wall losses, thin brass tubing with a thickness of 0.065 inches is used.

Based on the theory of Chapter 10 [Ref. 4], thin wall slots do not disturb the lines of current nor contribute to the excitation of the modes; thus, analytical calculations are not required for the selection of the slot widths. Slot widths of 0.100, 0.133, 0.226, and 0.289 inches are selected to represent a broad range of test samples for measurement. These cylinders are tested in a broad frequency range of 3.0 GHz to 13.0 GHz and 4.1 GHz to 5.3 GHz to examine specific TM_{01l} mode characteristics of the cylindrical cavity.

D. THESIS OUTLINE

The remaining portions of the thesis are presented in Chapters II through IV. Chapter II describes the measurement configuration at the Naval Postgraduate

School as well as the calibration and measurement procedures. Chapter III presents analysis of the measurement results and comparison between theoretical data and measured data. Chapter IV concludes the thesis with a summary of problems encountered and the results of the research. Recommendations where future research is required are also addressed.

II. MEASUREMENTS

The slotted cylinder resonance measurements were conducted at the Naval Postgraduate School in the frequency range of 3.0 to 13.0 GHz and 4.1 to 5.3 GHz. This chapter addresses the measurement configuration, test structure geometry, and calibration and test procedures.

A. MEASUREMENT CONFIGURATION

Figure 2.1 is a block diagram showing the signal flow of the measurement setup. Table 2.1 is a list of the equipment in the measurement setup. The frequency and output power level of the synthesized sweeper HP-8341B are controlled by an HP-9000 236 computer. The RF output from the synthesized sweeper is used as the input signal to a Narda Broadband High Directivity Directional Coupler (1-18 GHz). The -13 dB coupled output is attenuated by 33 dB and is used as the REFERENCE signal of the HP-8411A Harmonic Frequency converter for both phase and amplitude measurements. The RF signal fed through the directional coupler is radiated by the transmitting horn antenna. The field excited in slotted cylinder is detected by the E-field probe and is fed to the TEST port of the harmonic frequency converter (HP-8411A). The harmonic frequency converter, vector network analyzer, and phase-magnitude display (HP-8412B), function as a phase difference and magnitude ratio meter between the transmitted and received signals. The phase difference and

magnitude ratio are converted to voltages that are measured by the digital voltmeters HP-3456A and HP-3455A. The digital information from the voltmeters is transferred to the computer for processing and is displayed on the CRT and printer HP-2225A as magnitude and phase information.

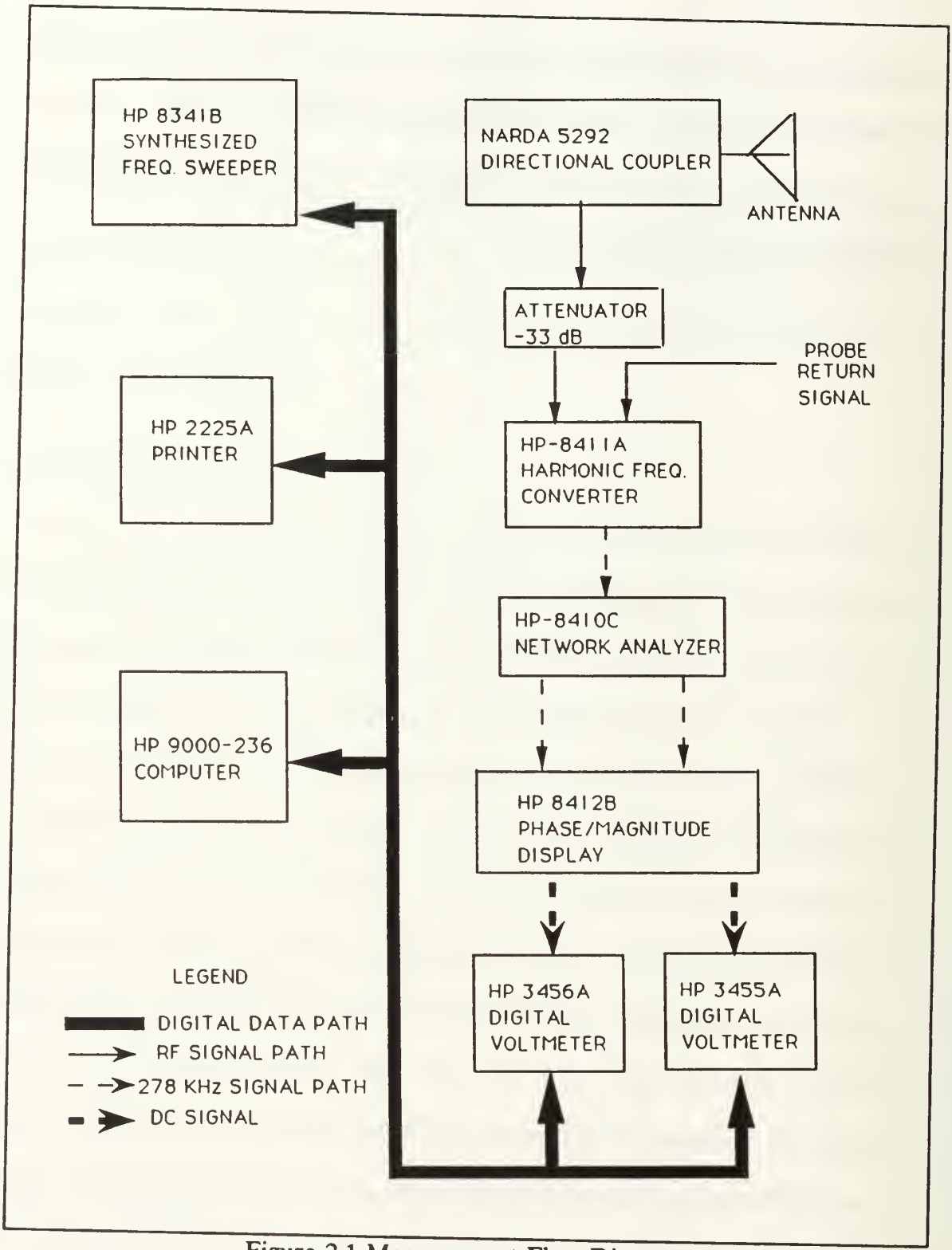

Figure 2.1 Measurement Flow Diagram

TABLE 2.1
MEASUREMENT EQUIPMENT

NOMENCLATURE	TYPE
Microcomputer	IBM-386
Computer	HP-9000-236
Printer	HP-2225A
Digital Voltmeter	HP-3455A
Digital Voltmeter	HP-3456A
Directional Coupler	Narda 5292
Phase Magnitude Display	HP-8412B
Network Analyzer	HP-8410C
Harmonic Frequency Converter	HP-8411A
Transmitting Antenna	AEL-1498 (2-18 GHz)
E-field probe	Standard monopole
Coaxial Cables	Standard (50 Ohms)

B. SLOTTED CYLINDERS AND PARALLEL PLATES

The orientation of the cylinders between the parallel plates is shown in Figure 2.2. The distance from the antenna to the cylinder is four feet. The cylinders are constructed of thin wall brass with varying slot widths and similar inside and outside diameters. The geometry is illustrated in Figure 2.3, and the dimensions of each cylinder are given in Table 2.2.

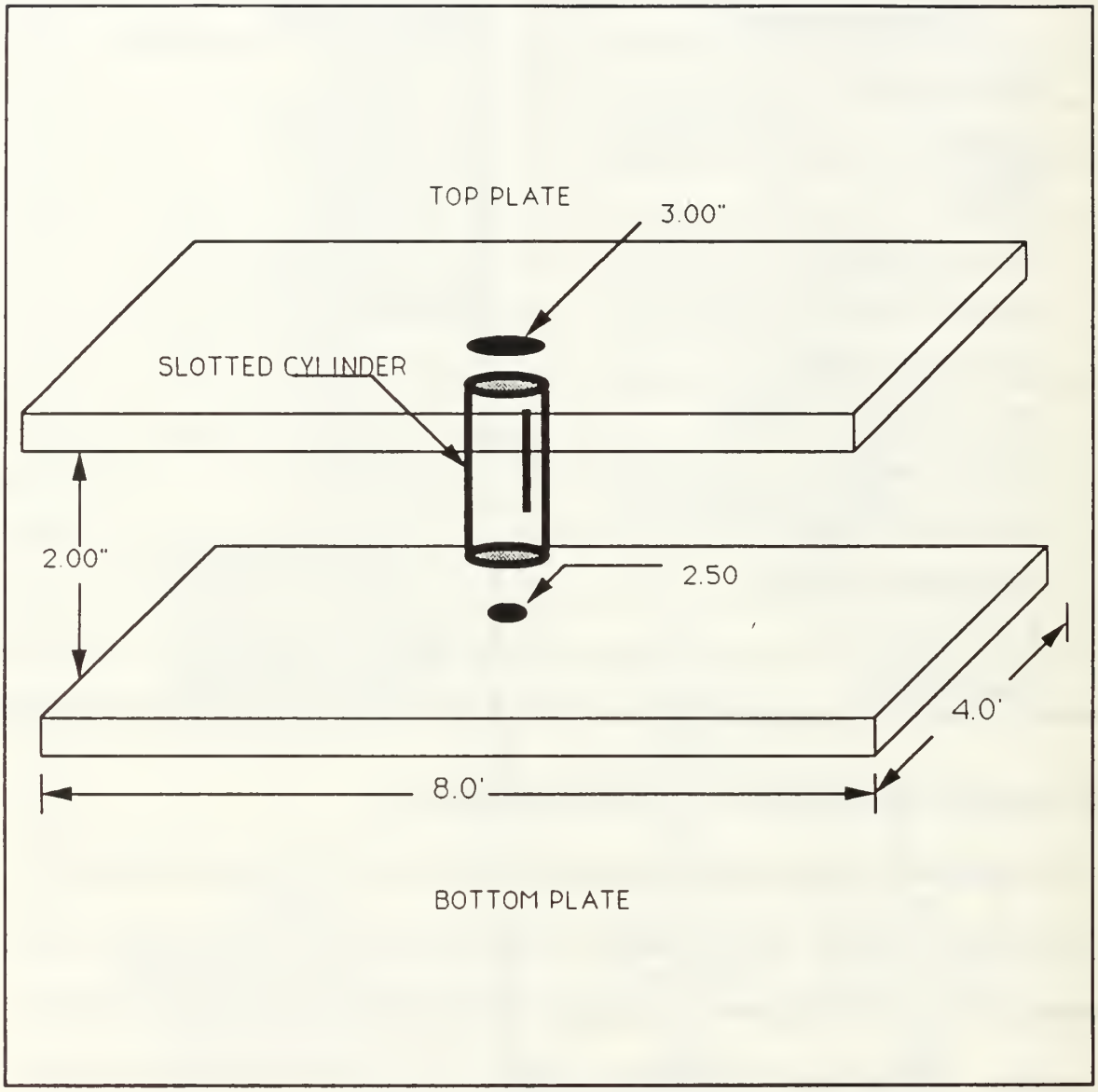

Figure 2.2 System Diagram

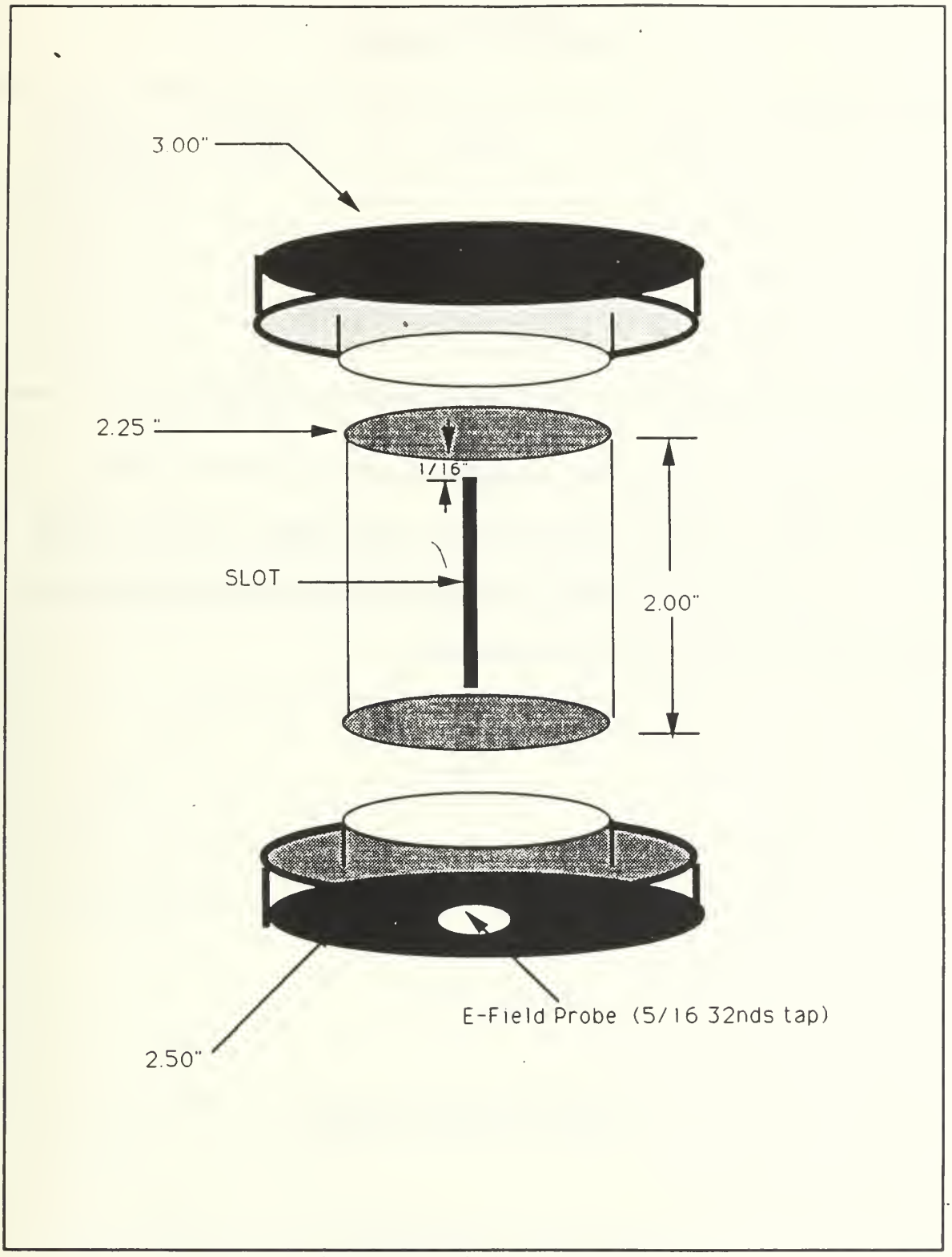

Figure 2.3 Cylinder Geometry

TABLE 2.2
CYLINDER DIMENSIONS

DESCRIPTION	I/D (inches)	O/D (inches)	HEIGHT (inches)	SLOT WIDTH (inches)
Cylinder 1	2.122	2.257	2.007	0.100
Cylinder 2	2.122	2.257	2.014	0.133
Cylinder 3	2.122	2.257	2.007	0.226
Cylinder 4	2.122	2.257	2.009	0.289

The parallel plates are constructed of aluminum and are sectioned in four foot by eight foot sheets. The plates have a thickness of one eighth of an inch and are machined with openings in the upper and lower plate to accommodate the cylinders. The geometry of the plates is shown in Figure 2.4.

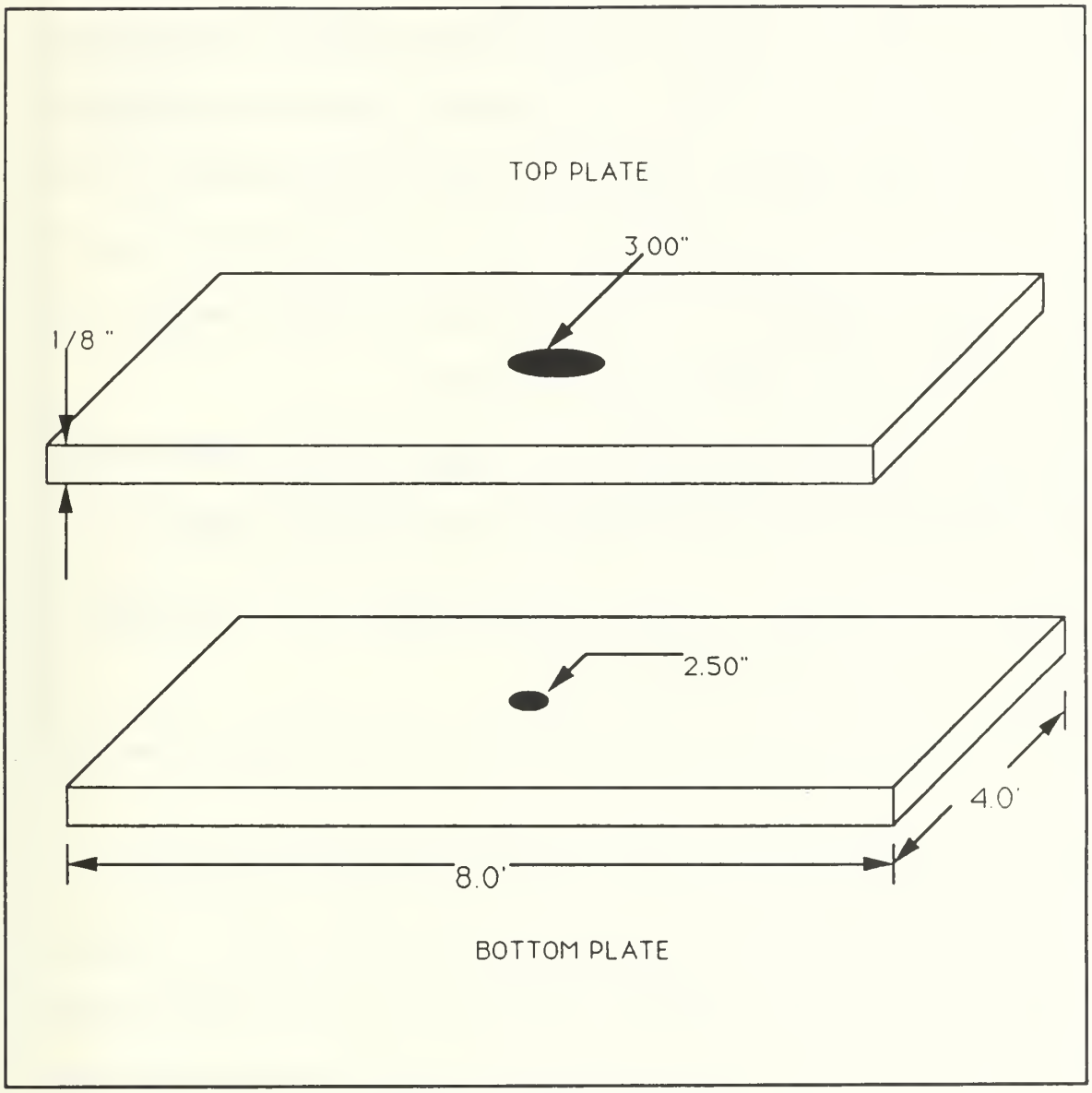

Figure 2.4 Plate Geometry

C. CALIBRATION PROCEDURE

In order to calibrate the frequency dependence of the experimental setup, several test runs were conducted in an Empty Chamber configuration. This configuration consists of the installation of two test fixtures to seal the openings on the aluminum plates in place of a slotted cylinder. These particular measurements are conducted to collect baseline data so that the magnitude and phase of the probe response to the incident field at various frequencies can be recorded. After each slotted cylinder is tested, the data is adjusted to cancel out variations due to probe response. This adjustment is referred to in the thesis as normalization.

Precision and accuracy specifications for the digital voltmeters, vector network analyzer, and associated measurement equipment are presented in Table 2.3.

TABLE 2.3
EQUIPMENT SPECIFICATIONS AND ACCURACY

EQUIPMENT	RANGE	RESOLUTION	ACCURACY
HP-8341B	0.01-20.0 GHz	1 Hz	.001
HP-3456	0.1-1000 V	100 microvolt	0.003%
HP-8410C	0.110-18 GHz	Magn. ± 0.3 dB Phase ± 1 degrees (0.11-4.0 GHz) ± Magn. 0.5 dB Phase ± 3 degrees (4.0-12.4 GHz)	± 0.05 dB per 1 dB step
HP-8411A	0.110 - 18 GHz	Magn. ± 1.5 dB (12.4-18 GHz)	± 0.05 dB per 1 dB step

To avoid magnitude and phase drift from equipment noise, each measurement was averaged over three measurement cycles by the SLOT measurement program. A program listing of the slot measurement program is presented in Appendix A. Magnitude versus frequency for pre- and post-test calibrations is presented in Figures 2.5 and 2.6.

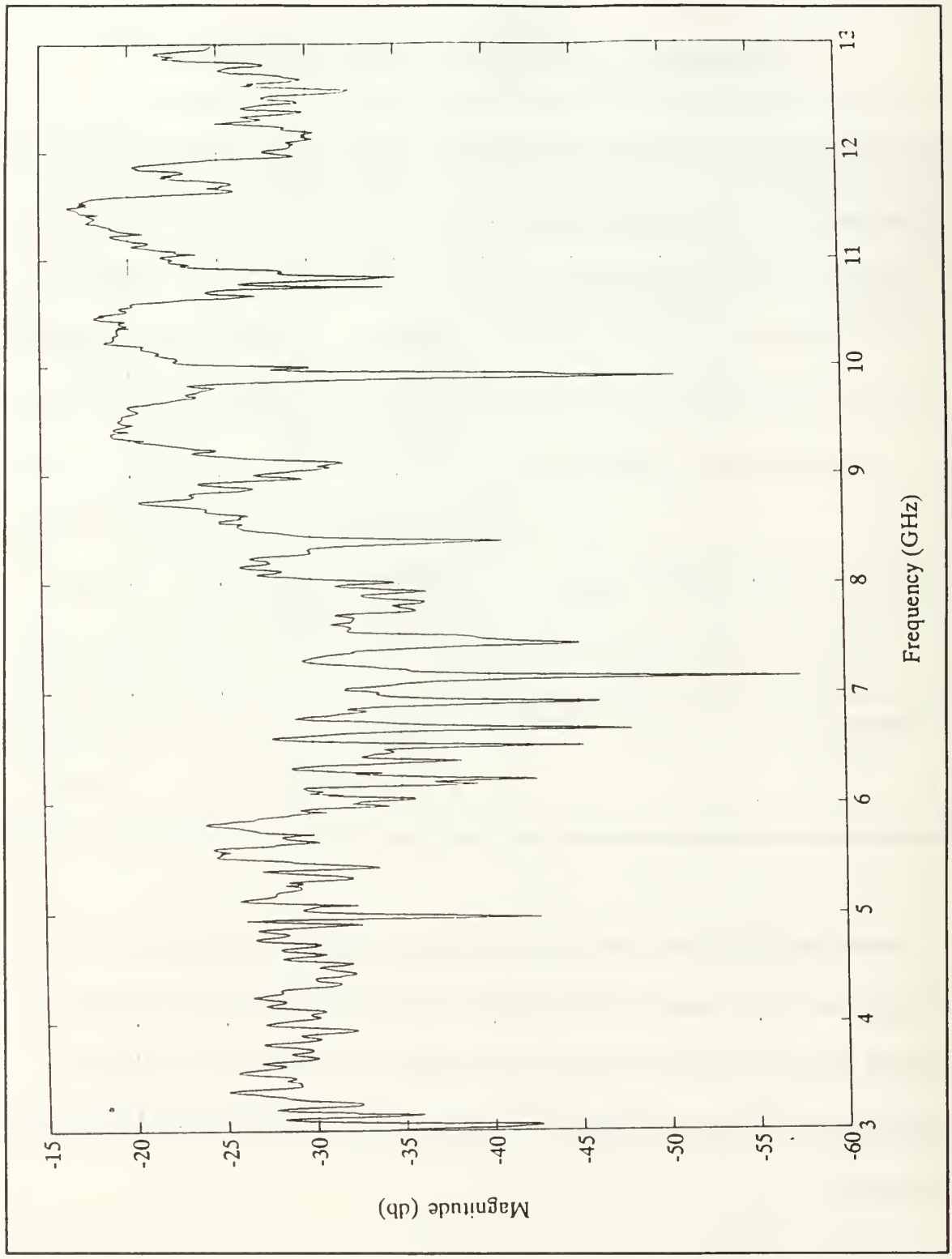

Figure 2.5 Pre-Calibration

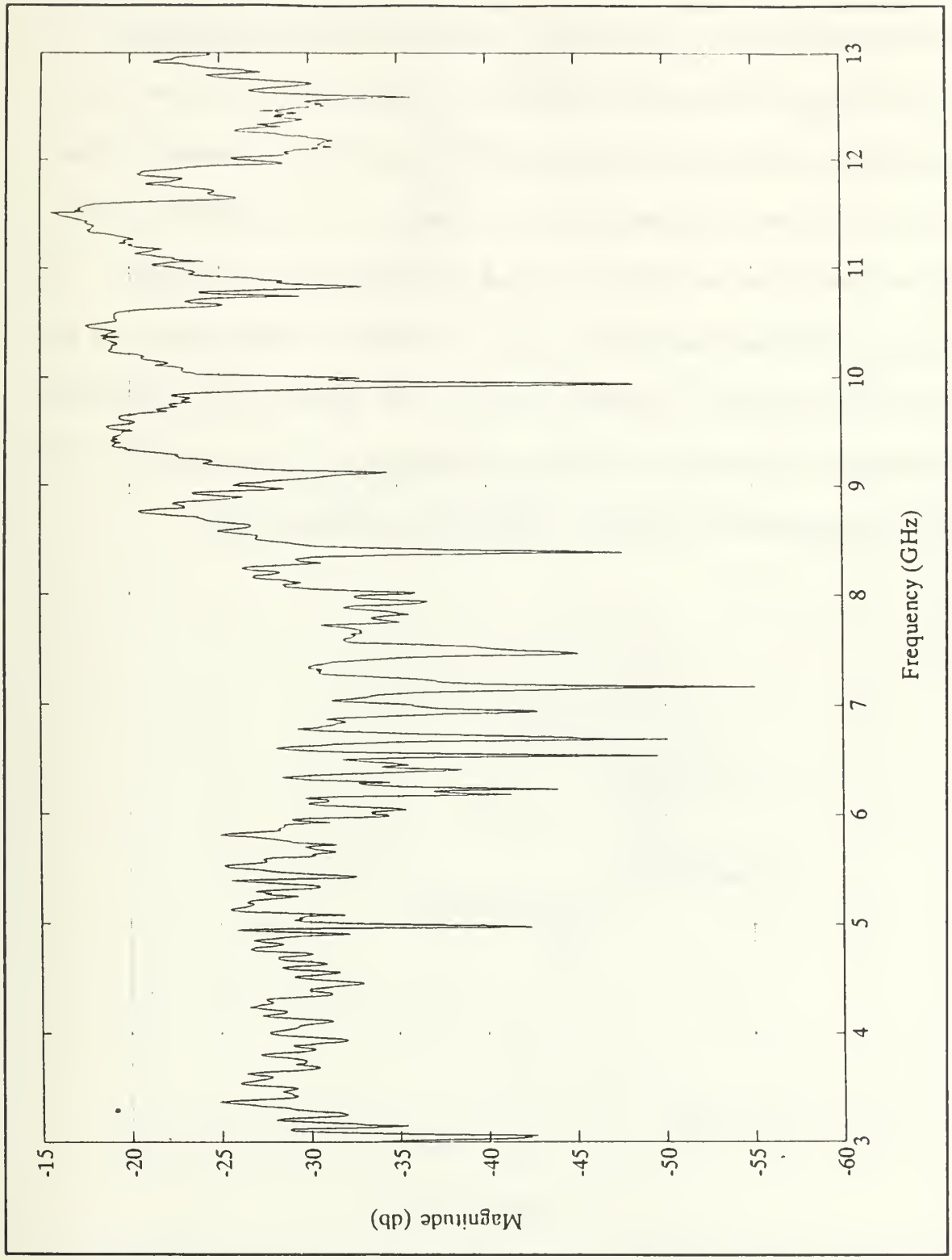

Figure 2.6 Post-Calibration

Measurement accuracy is verified by normalizing the same set of measured data with both the pre- and post-test calibration. A comparison of the two sets of normalized data aids in the determination of system stability. As shown in Figures 2.7 and 2.8, the overall characteristics of the magnitude versus frequency curve is fairly consistent when normalized with both pre- and post-test calibrations. The conclusion from these results is that the test structure is fairly stable and the measurement equipment reasonably accurate. The caption CYL 4A applies to normalization of Cylinder 4 with pre-test calibration data, and caption CYL 4B applies to normalization of Cylinder 4 with post-test calibration data.

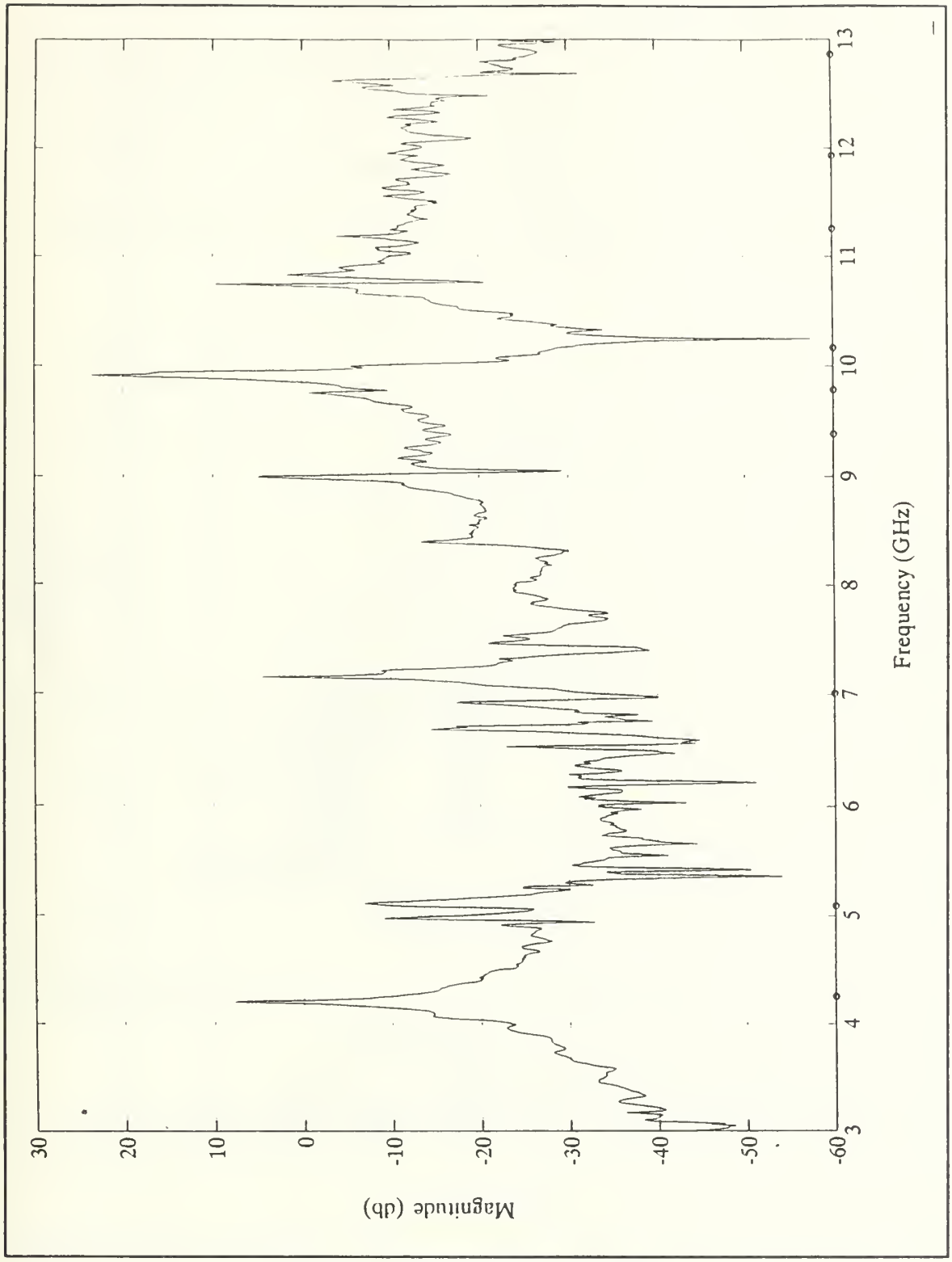

Figure 2.7 CYL 4A Normalization

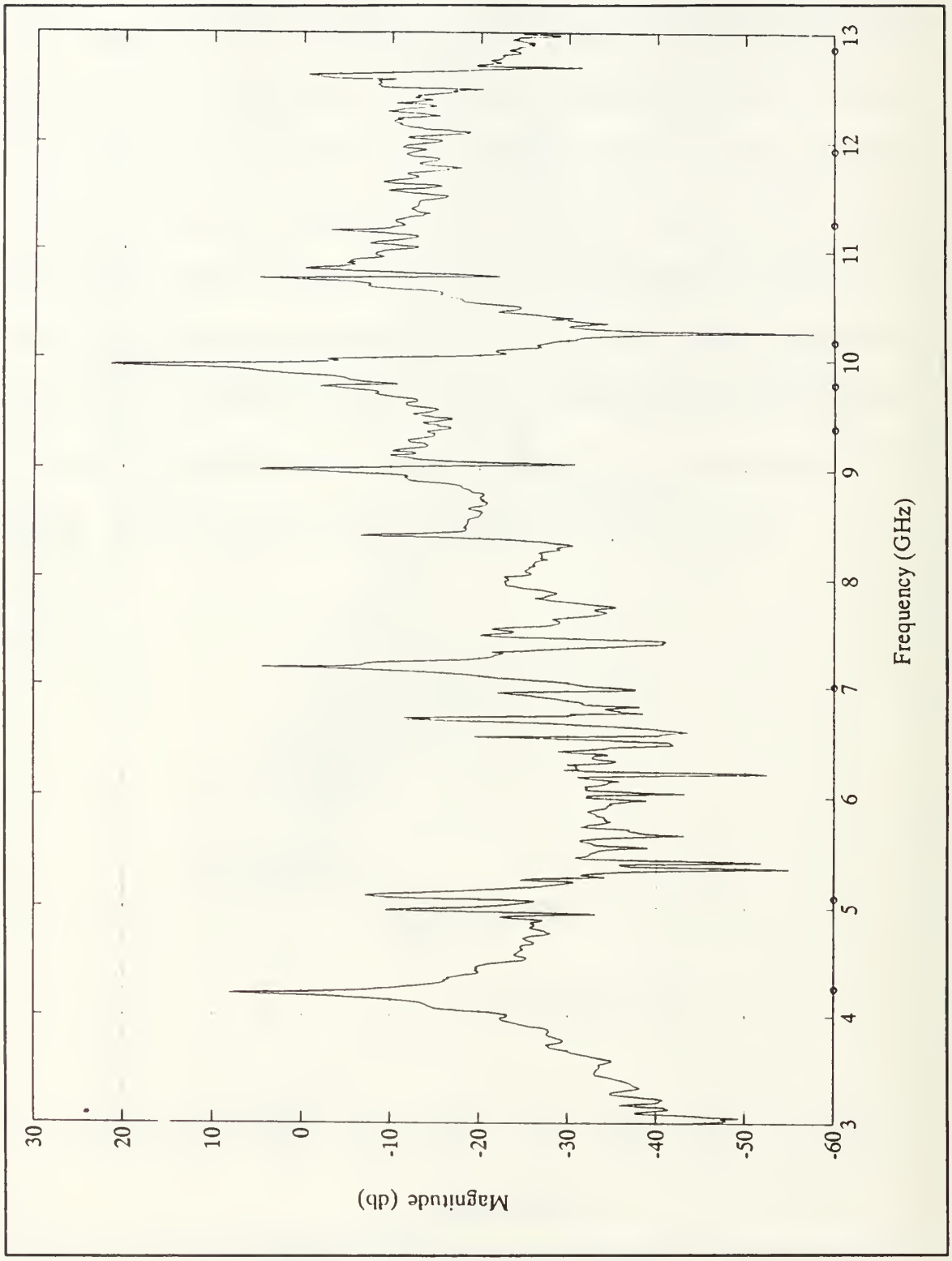

Figure 2.8 CYL 4B Normalization

The E-field probe was provided by the Electrical and Computer Engineering Department of New Mexico State University. This probe was constructed for use in their slot measurement program and is based on the theory in Chapter 8 [Ref.3]. The probe has been used successfully at New Mexico State in the frequency range 2.2 GHz to 4.0 GHz. Figure 2.9 [Ref.4] shows a drawing of the probe.

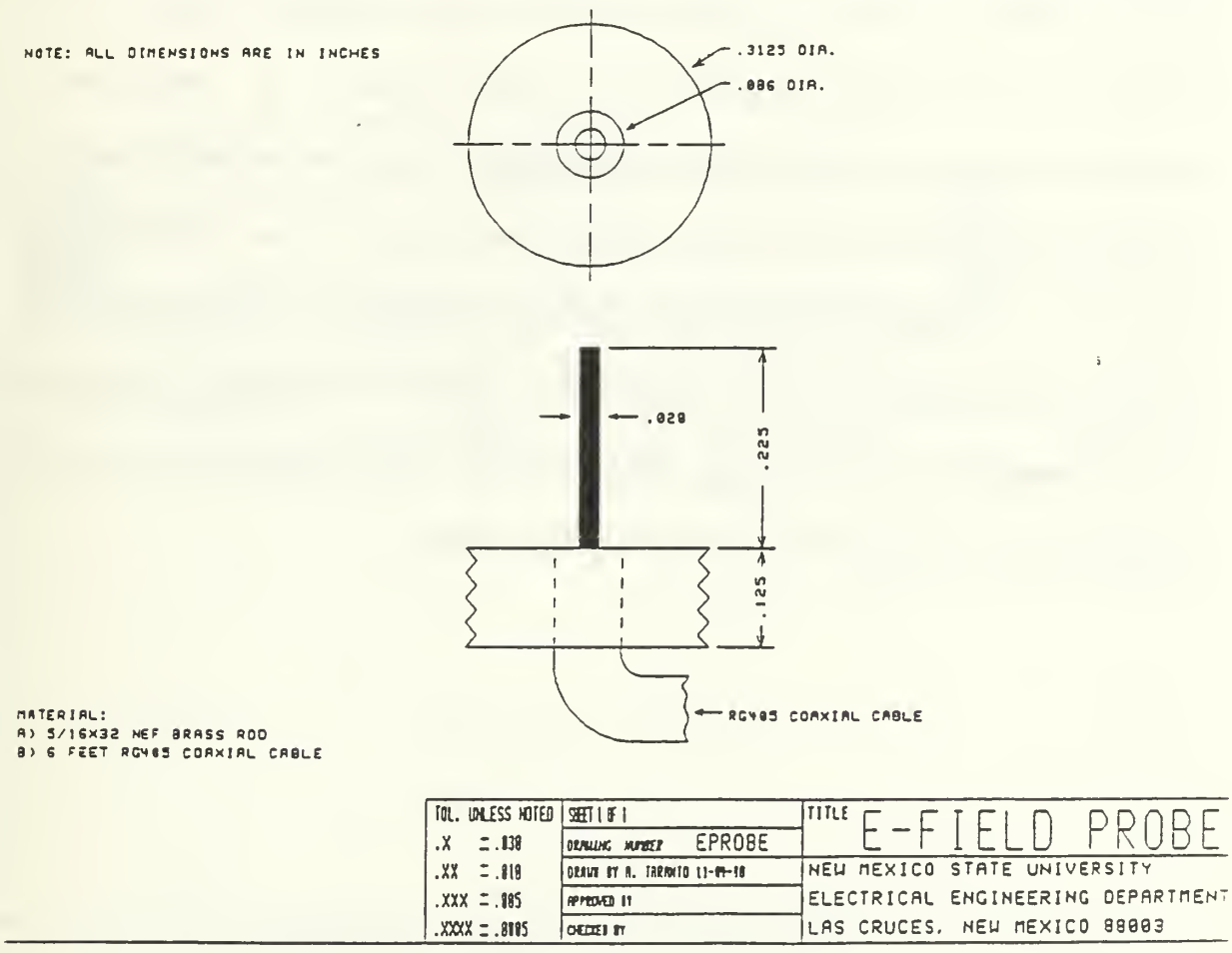

Figure 2.9. E-Field Probe

D. MEASUREMENT PROCEDURE

Each cylinder is placed between the parallel plates with the E-field probe located at the center of the base of the cylinder. The transmitting antenna is centered in the middle of one end of the parallel sheets with the slot of each cylinder facing the main beam pattern of the transmitting antenna. The measurement configuration is shown in Figure 2.10. The HP-8341B was programmed to sweep a frequency range from 3.0 GHz to 13.0 GHz in 10 MHz steps and 4.1 to 5.3 GHz in 1 MHz steps. A power level of 10 dBm was used for both series of tests. The measurements conducted in the 4.1 to 5.3 GHz range were necessary to improve resolution and also to observe the resonant peaks that may have been missed in the 10 MHz sweep band. Pre- and post-test calibration were also conducted to ensure that system stability and accuracy were maintained. Data at different frequencies in both series of tests were taken 1.0 second apart and averaged over three measurement cycles to reduce effects of magnitude and frequency fluctuations.

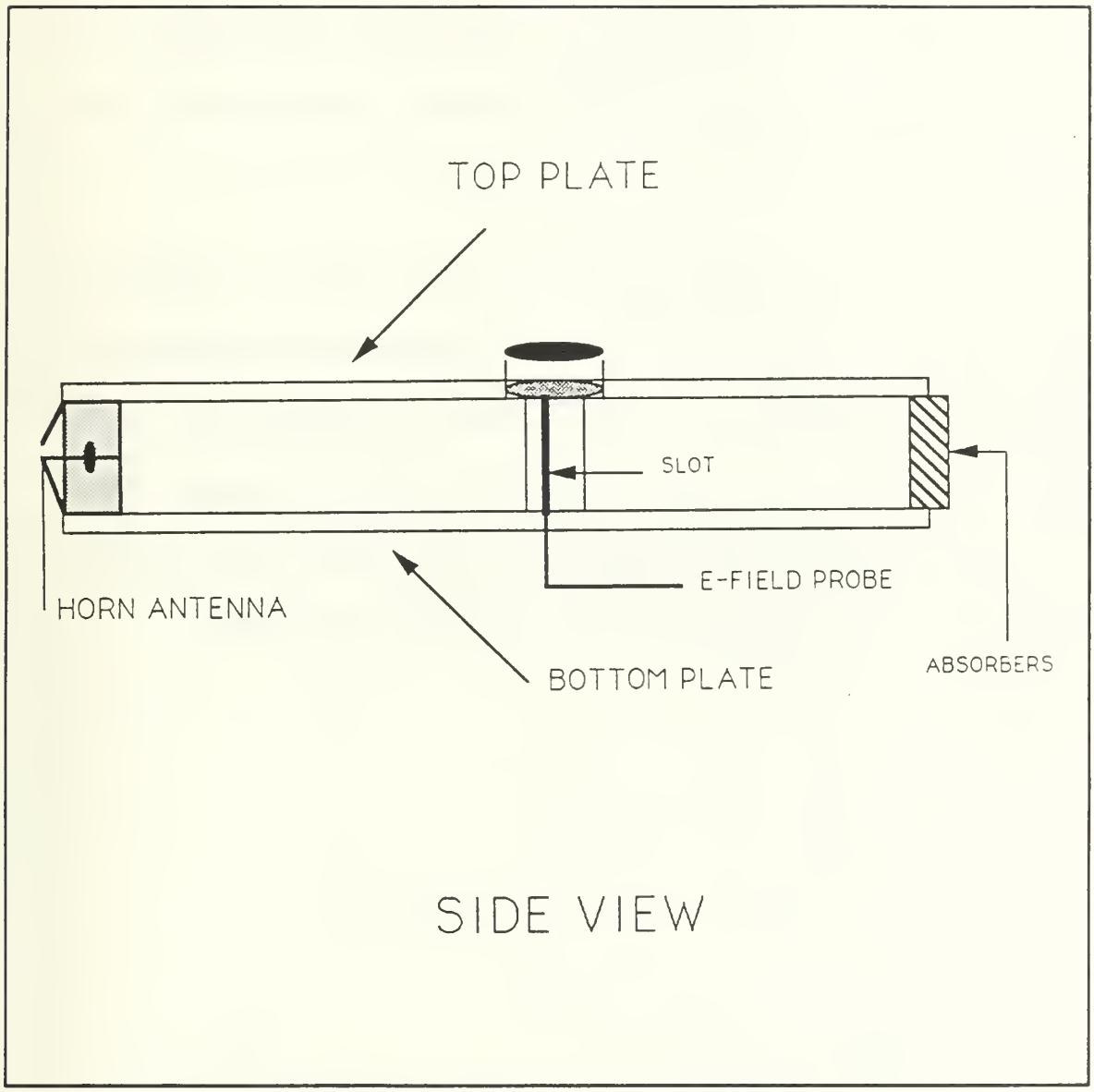

Figure 2.10 Measurement Configuration

Because of mechanical constraints, the E-field probe cannot be permanently mounted on the lower plate, imposing the requirement of re-installing the probe when the cylinder is changed. A special stop was designed for the probe to ensure that uniform depth was maintained throughout the testing of various cylinders. The SLOT measurement program was also utilized for the slotted cylinder measurements.

E. MEASURED DATA

The normalized measurement data for the four cylinders is presented in Appendices B and C. Plots of magnitude versus frequency for each cylinder in the test range of 3.0 to 13.0 GHz is presented in Figures 2.11 through 2.13. Plots of magnitude versus frequency for the 4.1 to 5.3 GHz test range are shown in Figures 2.14 - 2.17. The measured data and plots are used for comparison with theoretical computations. An analysis of these results is presented in Chapter III.

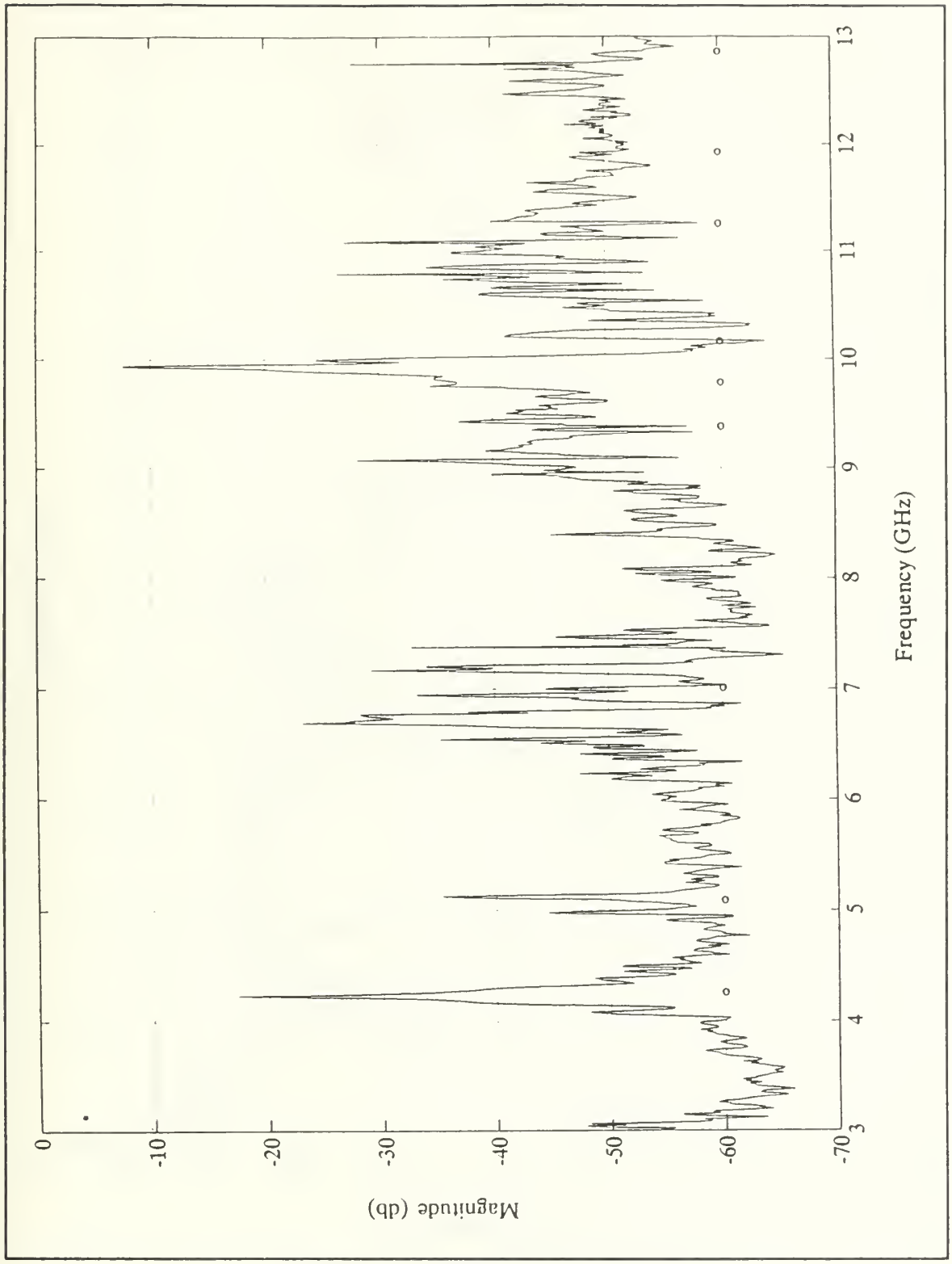

Figure 2.11 CYL 1 Normalization

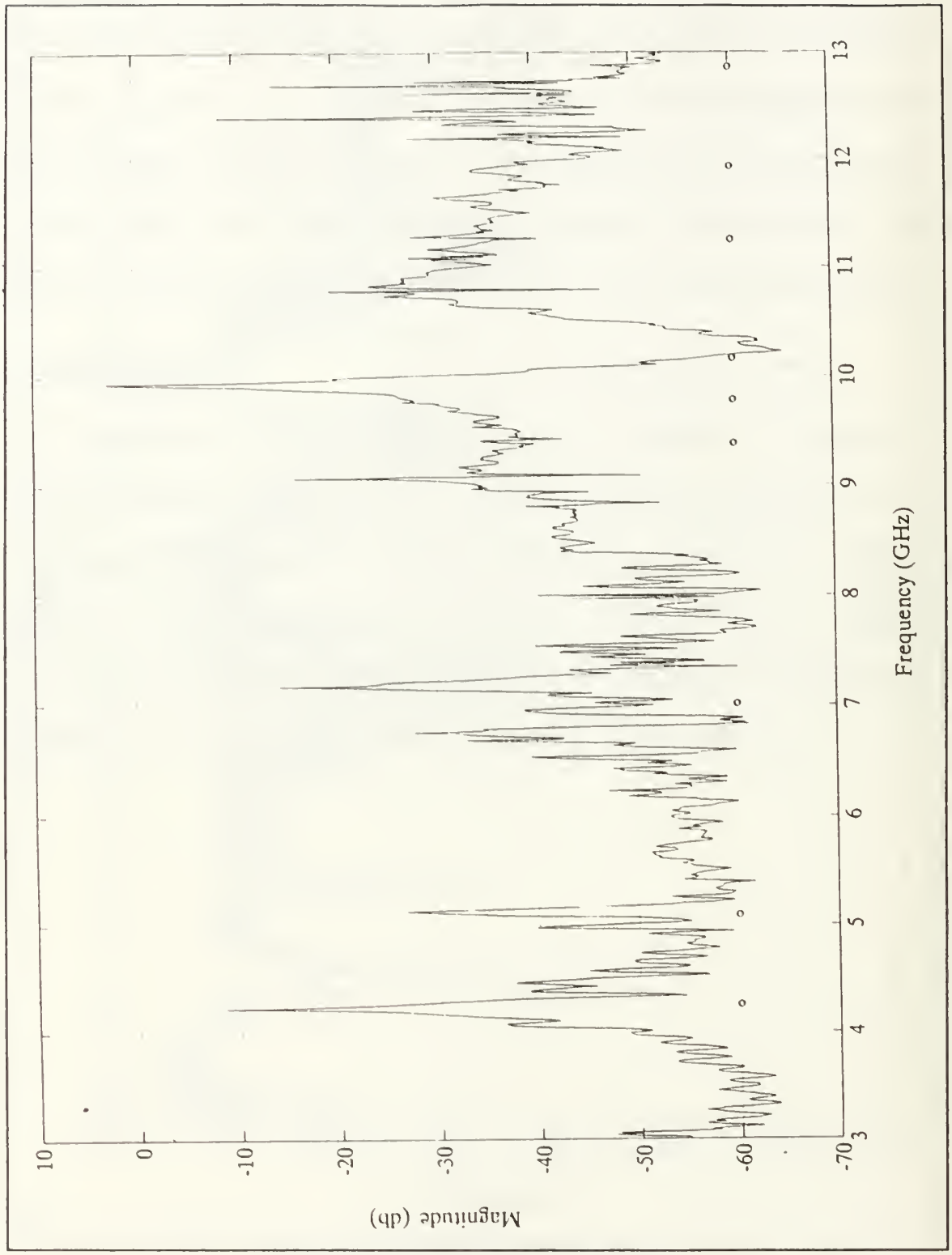

Figure 2.12 CYL 2 Normalization

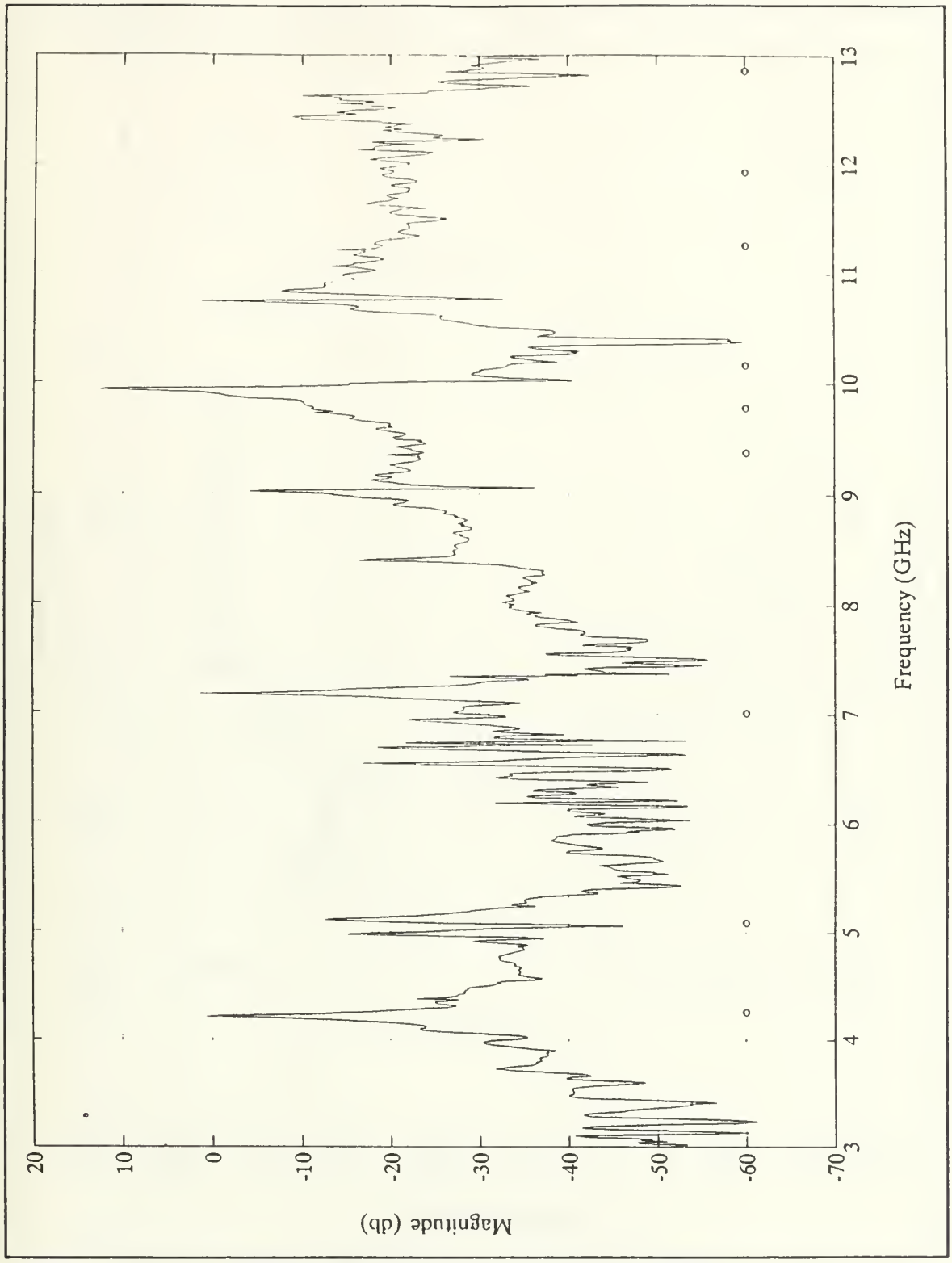

Figure 2.13 CYL 3 Normalization

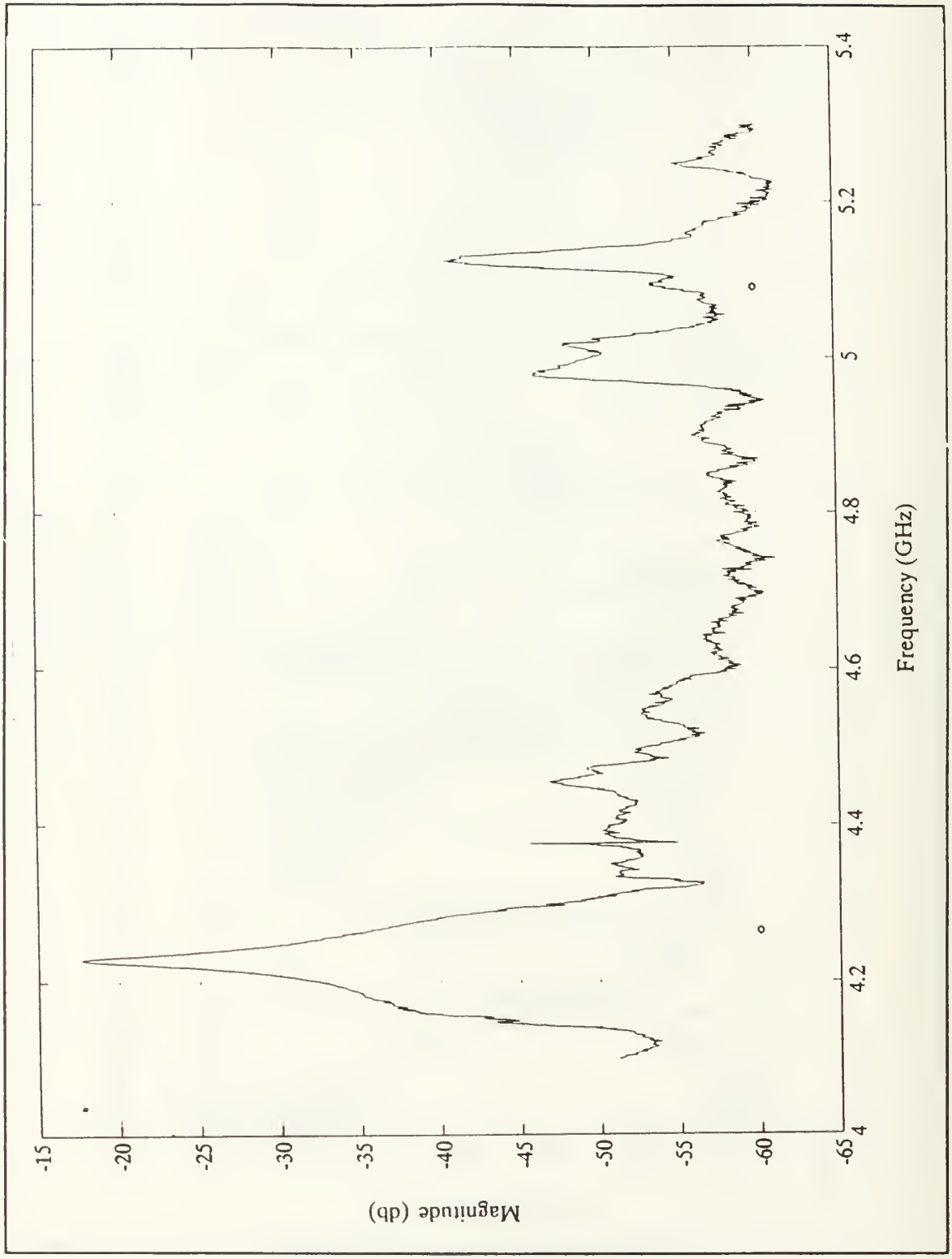

Figure 2.14 CYL 1 Normalization

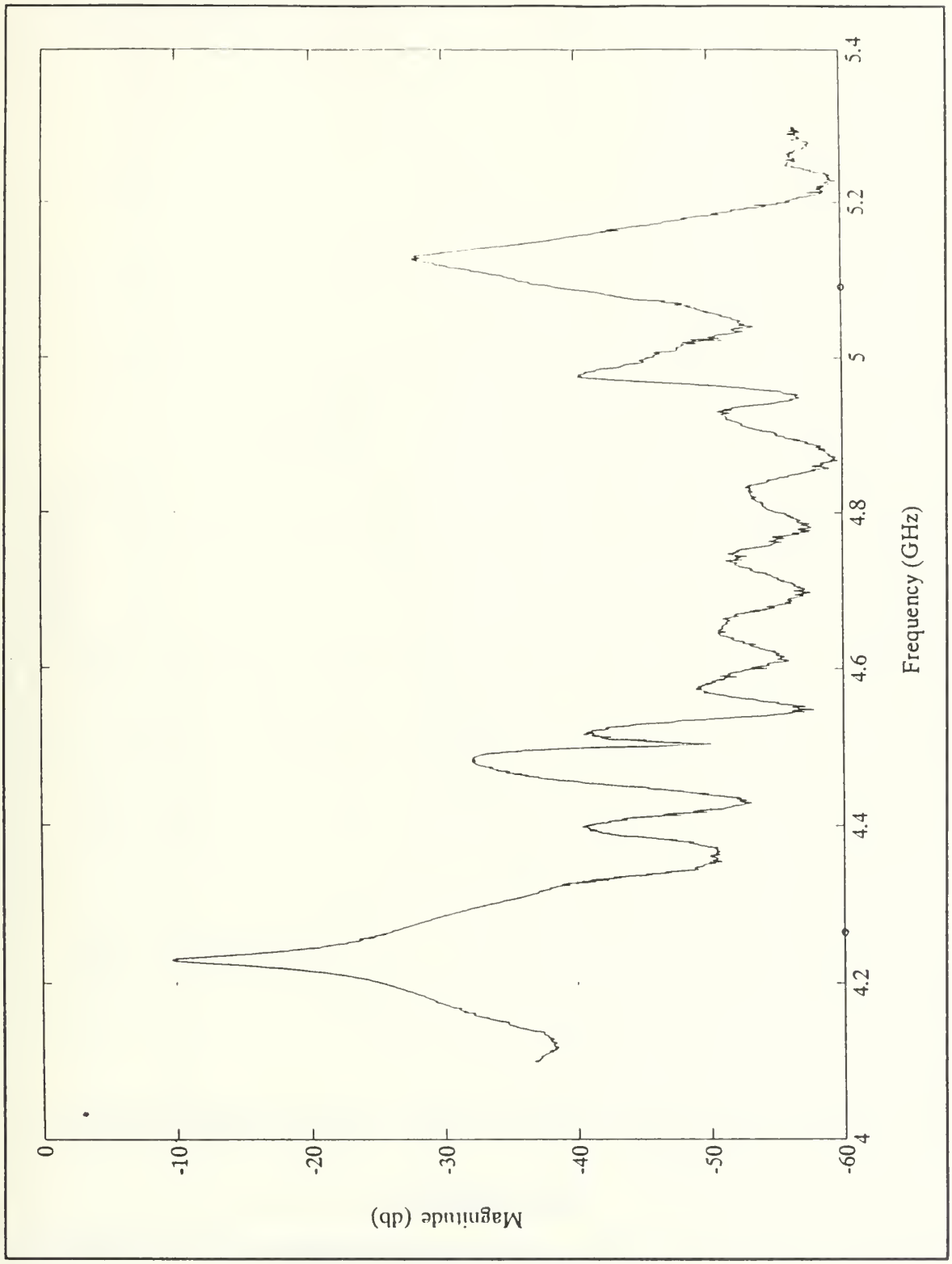

Figure 2.15 CYL 2 Normalization

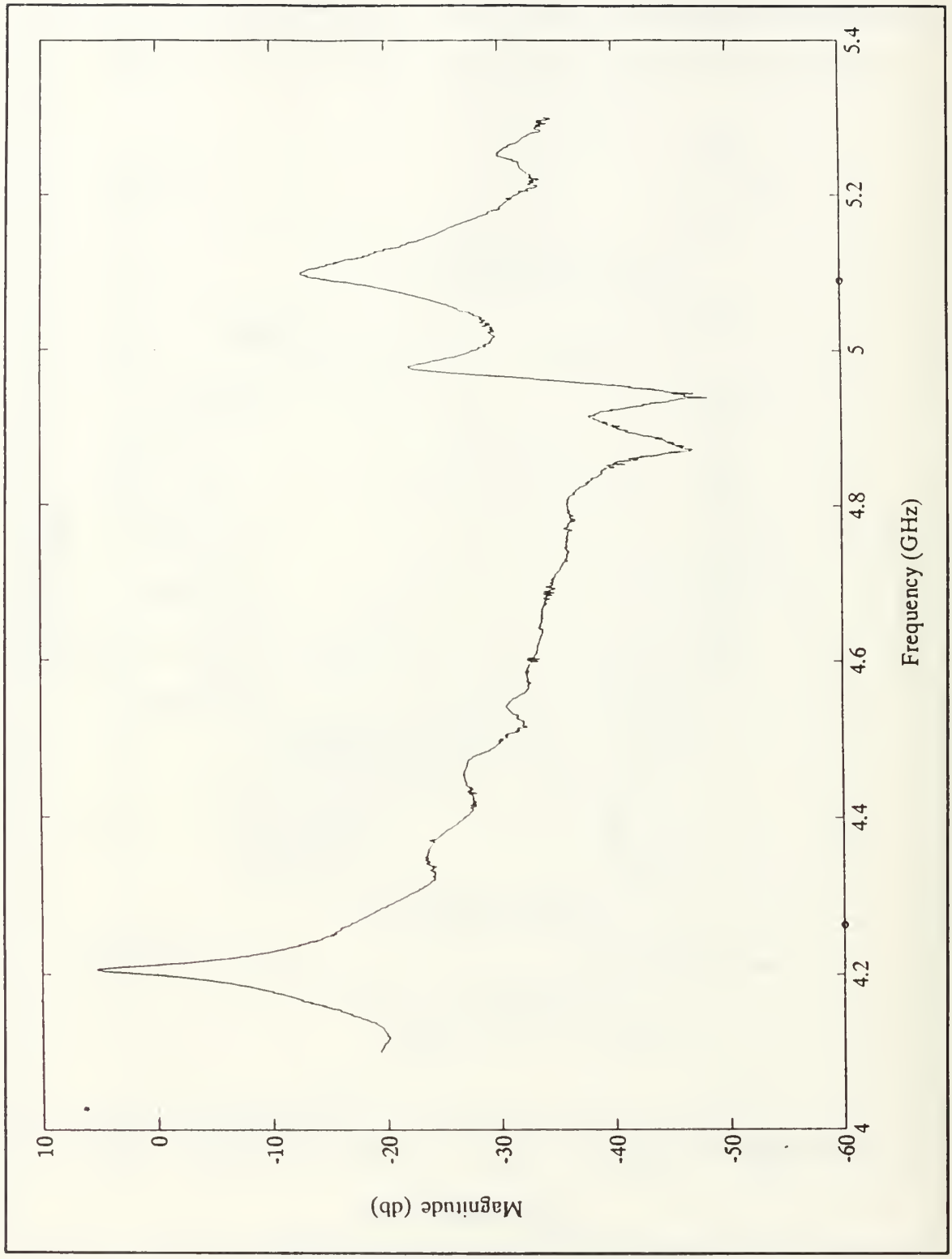

Figure 2.16 CYL 3 Normalization

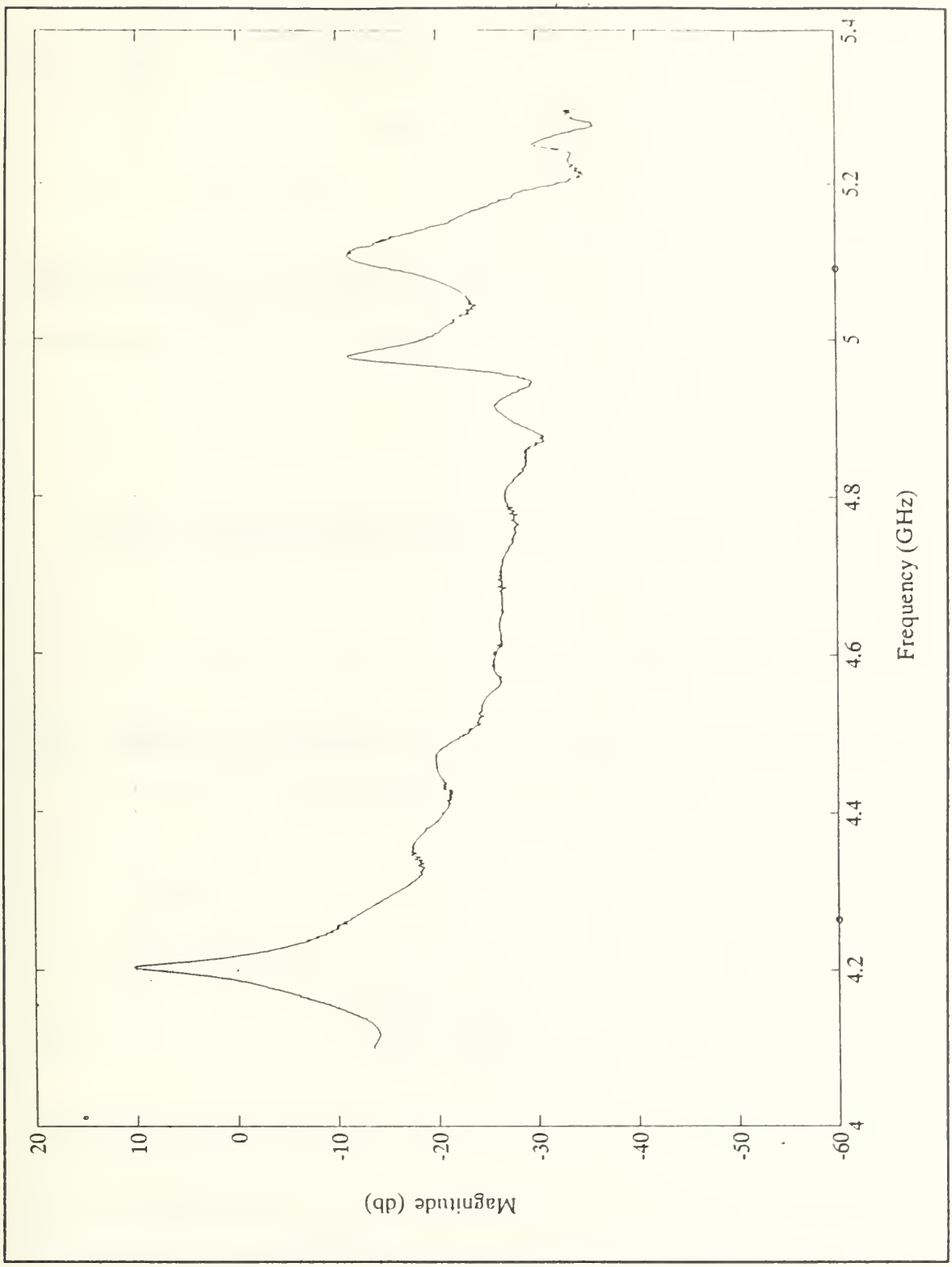

Figure 2.17 CYL 4 Normalization

III. DATA ANALYSIS

A. ANALYSIS OF EXPERIMENTAL DATA

The measurement results for the resonance characteristics of the slotted cylinders described in Chapter I are analyzed. The resonance frequency of the cylinder is a function of four parameters:

- Waveguide mode.
- The number of variations in the standing wave pattern along the cylinder.
- Height of the cylinder.
- Inner radius of the cylinder.

The resonance frequency is given by equation (3-1) [Ref. 5] for the TM_{nml} mode as:

$$f_{nml} = \frac{c}{2\pi\sqrt{\mu\epsilon}} \sqrt{\left[\frac{P_{nm}}{a}\right]^2 + \left[\frac{l\pi}{d}\right]^2} \qquad (3-1)$$

where f_{nml} = resonance frequency

c = speed of light

ϵ = relative permittivity of material (air) = 1

μ = relative permeability of material (air) = 1

P_{nm} = the zeros of the Bessel functions

a = the inner radius of the cylinder

l = 0,1,2,... is the number of half cycles of variation in the z direction

d = height of the cylinder

Since the incident wave has an E-field polarized parallel to the axis of the cylinder, it is expected that only the TM_{nml} modes for a circular cavity are excited in the cylinder. The theoretical resonant frequencies for some of the lower order TM_{nml} modes are presented in Table 3.1. Since the probe is located at a null of the

TM_{nml} mode for $n \neq 0$, this table incorporates all possible TM_{0ml} modes whose E-field strength can be detected by the probe.

TABLE 3.1
TRANSVERSE MAGNETIC RESONANCE MODES

MODE	RESONANCE FREQUENCY
TM_{010}	4.260 GHz
TM_{011}	5.091 GHz
TM_{012}	7.014 GHz
TM_{013}	9.380 GHz
TM_{014}	11.929 GHz
TM_{020}	9.780 GHz
TM_{021}	10.169 GHz
TM_{022}	11.255 GHz
TM_{023}	12.864 GHz

B. THEORETICAL RESONANCE VS MEASURED RESONANCE

A comparison of theoretical results versus measured results was conducted to determine which TM_{nml} modes are excited. The analysis is conducted in the 4.1 to 4.6 GHz test range to utilize the enhanced resolution of 1 MHz spacing between measurement cycles.

A detailed analysis is conducted for the TM_{010} mode for each cylinder. As shown in Figures 3.1 - 3.4, close correlation exists between the calculated resonance peak and the measured resonance peak. This is highlighted by the subscript 'o' on each of the figures to indicate the TM_{010} mode resonant frequency. Normalized

of the figures to indicate the TM_{010} mode resonant frequency. Normalized measurement data for this sequence of tests is presented in Appendix D. The calculated and measured resonance peaks are presented in Table 3.2.

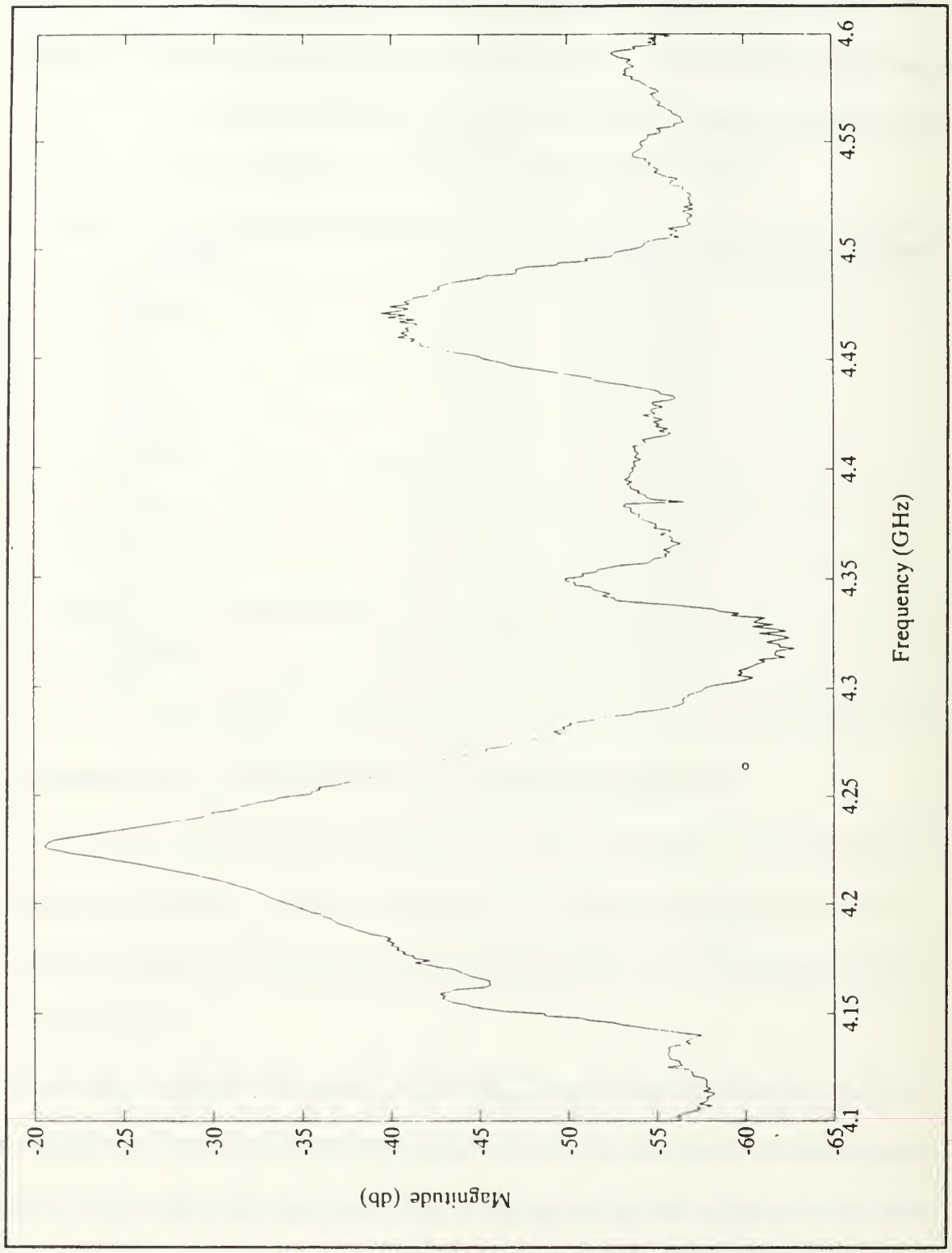

Figure 3.1 CYL 1 Normalization

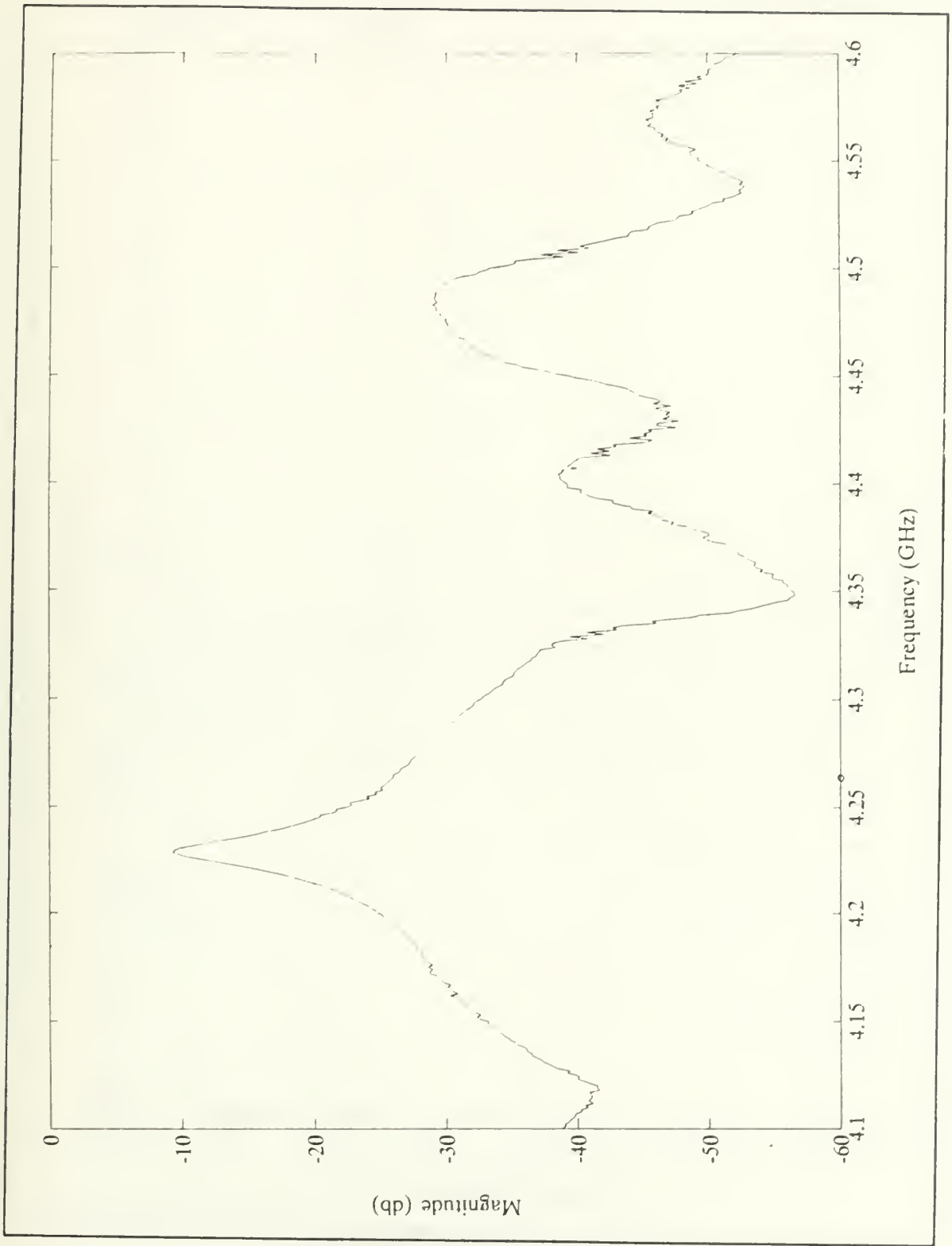

Figure 3.2 CYL 2 Normalization

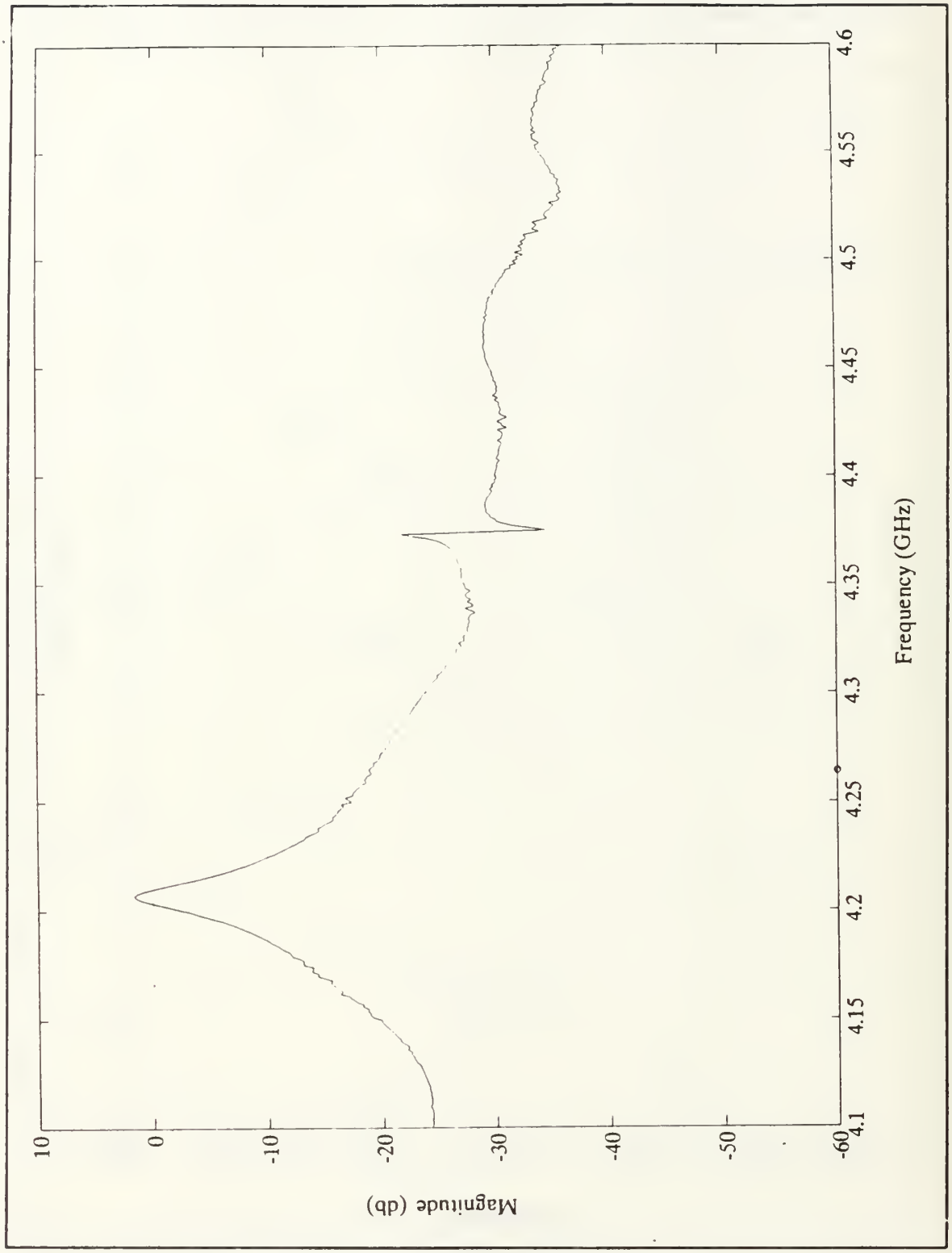

Figure 3.3 CYL 3 Normalization

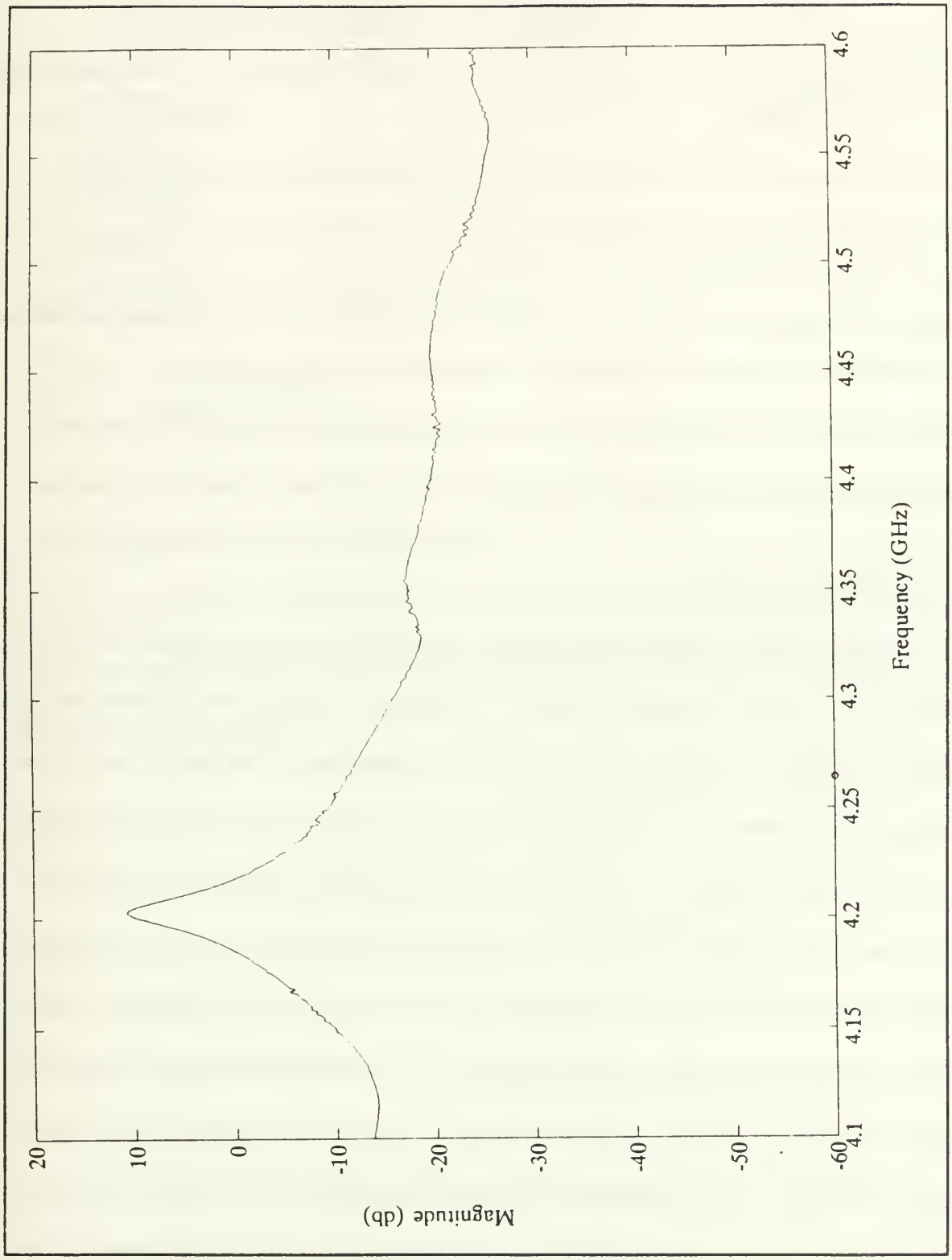

Figure 3.4 CYL 4 Normalization

TABLE 3.2
CALCULATED AND MEASURED RESONANCE PEAKS

CYLINDER	TM (CALC)	TM (MEAS)
1	4.26 GHz	4.228 GHz
2	4.26 GHz	4.228 GHz
3	4.26 GHz	4.206 GHz
4	4.26 GHz	4.204 GHz

Differences between calculated and measured resonance peaks are expected. Because equation (3-1) assumes that the cavity is completely closed, the presence of the slot on each of the actual cylinders reduces the resonance frequency as observed.

C. QUALITY FACTOR

A resonant cavity is useful only if power can be fed into and coupled out of the cavity. Fields can be excited inside the cavity not only at the discrete set of frequencies f_{nml}, which are determined by the dimensions of the cavity, but also at frequencies in between. Openings on cavity walls, such as slots, effectively enlarge the physical size of the cavity resulting in a reduction of the resonant frequency. The measured resonant frequencies are lower than the theoretical resonant frequencies because the theoretical resonant frequencies are based on a solidly enclosed cavity. This is exactly the case illustrated in Figures 3.1 - 3.4 when the measured values are compared against calculated values. As long as the openings are small, the excitation inside the cavity will be significant only near the resonant frequencies of the ideal cavity (i.e., one with a closed, perfectly conducting surface). The energy stored in the cavity will have a peak near $f=f_{nml}$. Such peaks become smaller and less significant

as the openings become larger. This is because energy flows more freely through the openings once the openings achieve dimensions that are a sizeable fraction of a wavelength [Ref. 6].

The capability of a cavity to hold energy at resonance is called the quality factor of the cavity, or Q. It is measured against the energy lost from the cavity over a cycle. From [Ref. 6] Q is defined as

$$Q = \omega \times \frac{Stored\ Energy}{Cavity\ Power\ Loss} \tag{3-2}$$

D. EXPERIMENTAL MEASUREMENTS

Experimentally, Q is measured as the ratio of the resonance frequency to the half power bandwidth. Table 3.3 shows the results for the experimental measurement of Q for the TM_{010} mode.

TABLE 3.3
EXPERIMENTAL MEASUREMENT OF Q

CYLINDER	FREQUENCY	Q
1	4.226 GHz	367.5
2	4.229 GHz	422.9
3	4.207 GHz	400.66
4	4.203 GHz	420.3

The initial results are different than expected; i.e., the larger slots have a higher value of Q than the smallest slot. Several possibilities were explored to understand the discrepancy. Three possibilities are equipment malfunction, cylinder misalignment, and high noise level. The first two possibilities were investigated and the results are as follows:

- Equipment operation was deemed satisfactory based on the consistency of pre- and post-test data. Original equipment settings were unchanged and all cable connections to the test structure verified. Additional checks included inspection of the cylinders to ensure proper sealing and absence of seams. No problems were noted in any of the inspections.

- Cylinder misalignment was examined by conducting a second series of tests. These measurements were performed with modifications to the original test plan. Specifically, testing was conducted in the 4.15 GHz to 4.28 GHz range with a measurement spacing of 0.5 MHz. The cylinder alignment procedure was changed so that in addition to aligning the index marks of the cylinder to the scribe mark on the top plate, the following steps were performed:

  * The HP 8341B frequency sweeper was tuned to the highest measured resonance value of the cylinder under test.

  * The cylinder was rotated to observe maximum DC voltage on the HP 3456A DVM.

* When the maximum value was obtained on the DVM, the cylinder was locked in place and testing reconducted in the specified range.

The results of these measurements are presented in Figures 3.5 - 3.8.

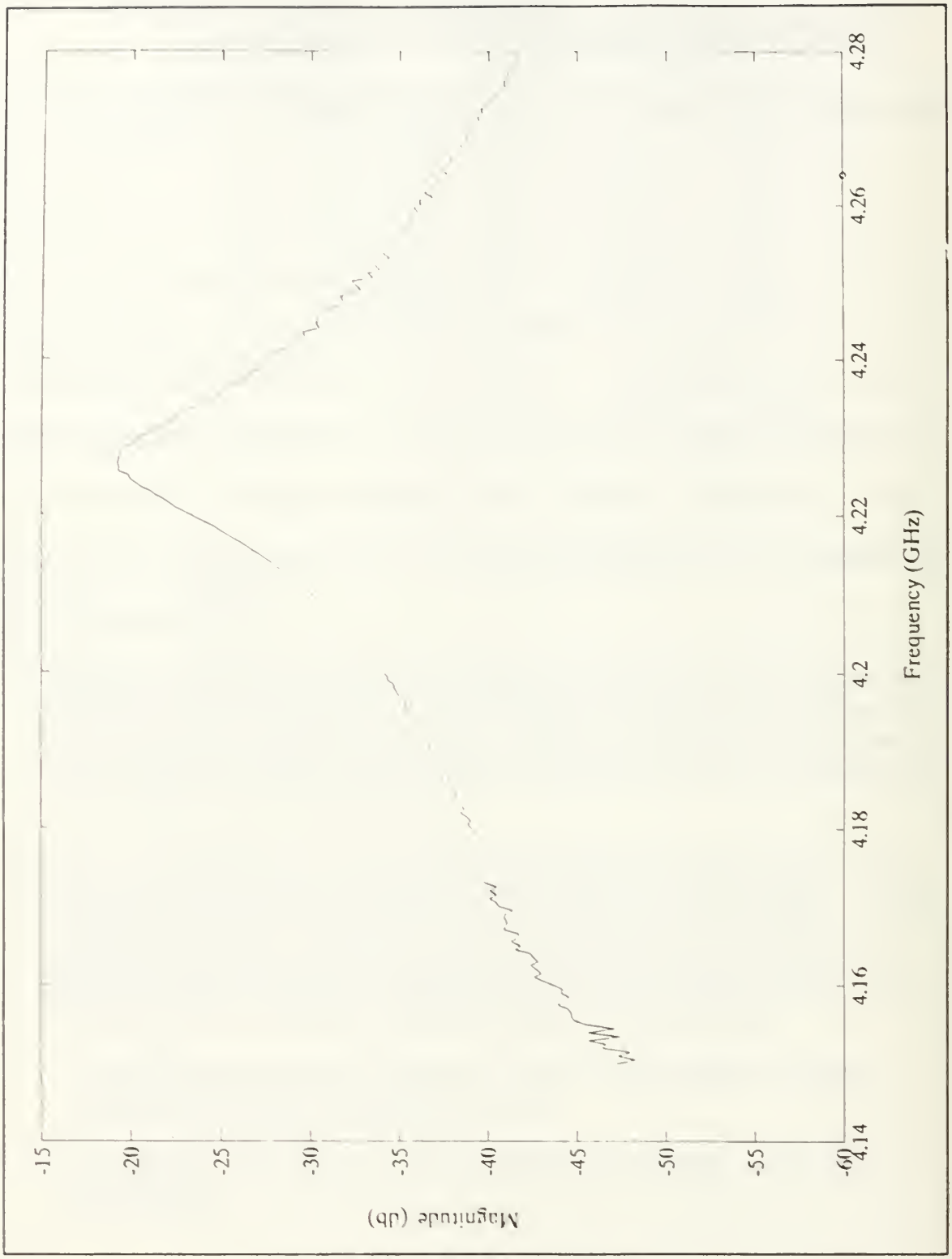

Figure 3.5 CYL 1 Normalization

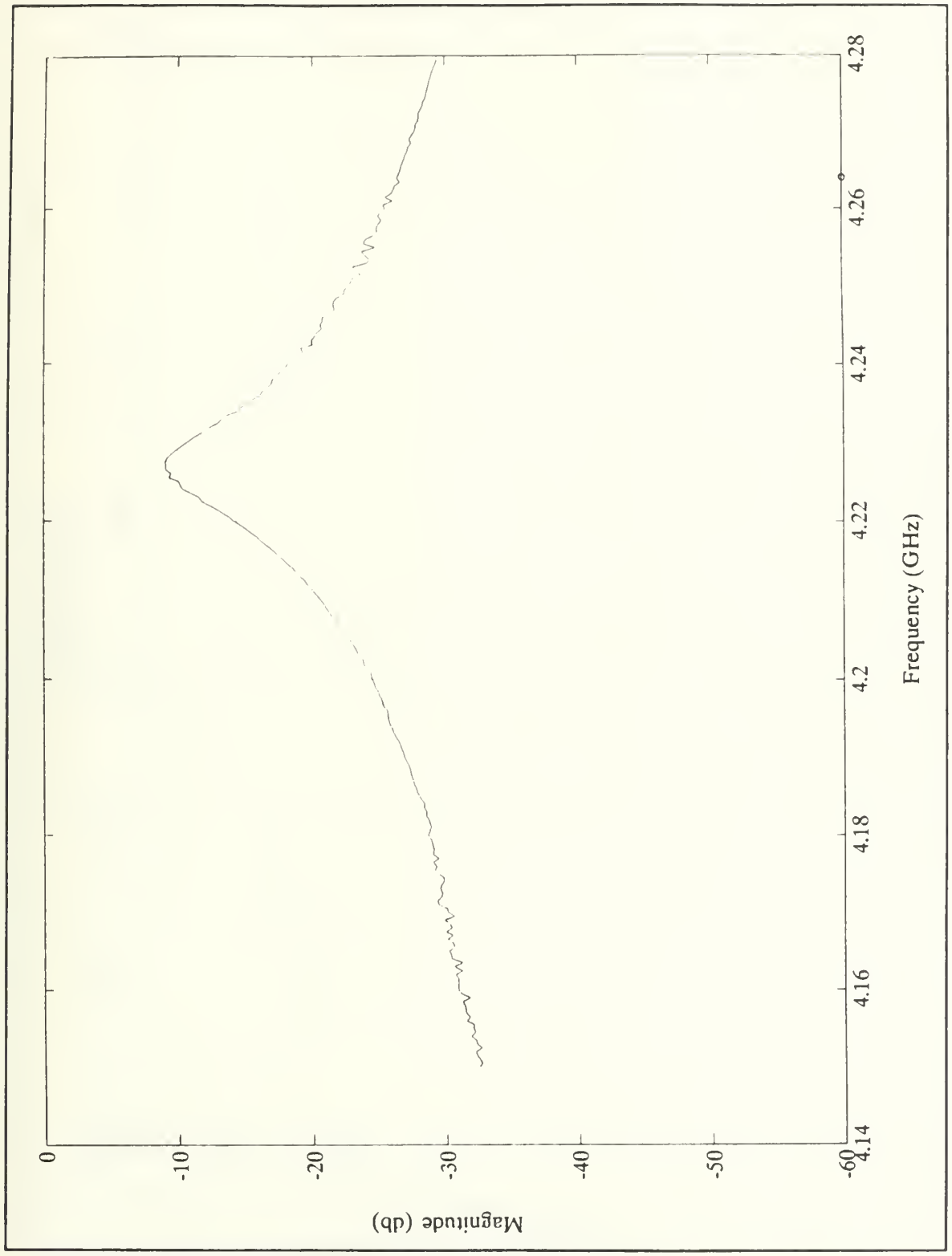

Figure 3.6 CYL 2 Normalization

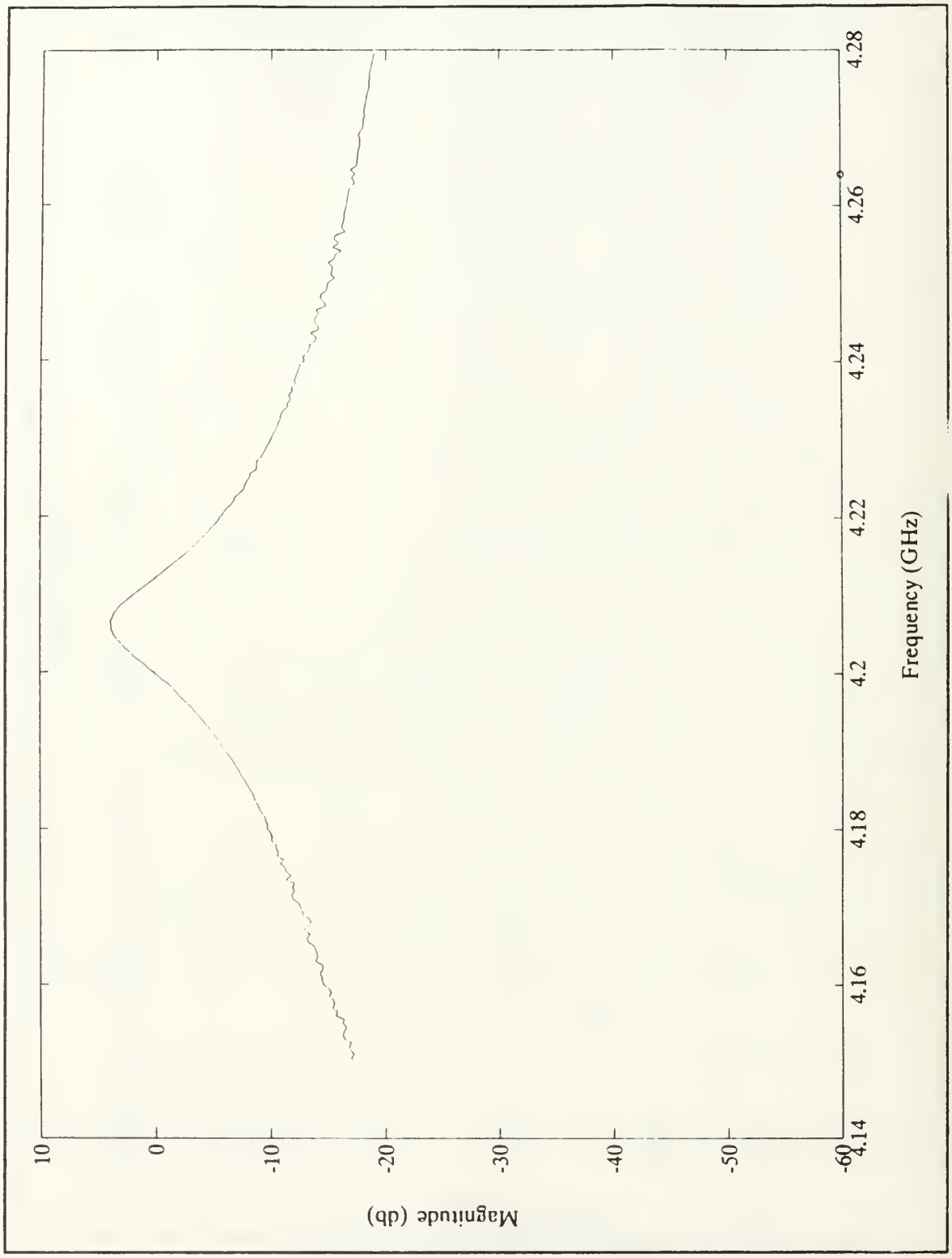

Figure 3.7 CYL 3 Normalization

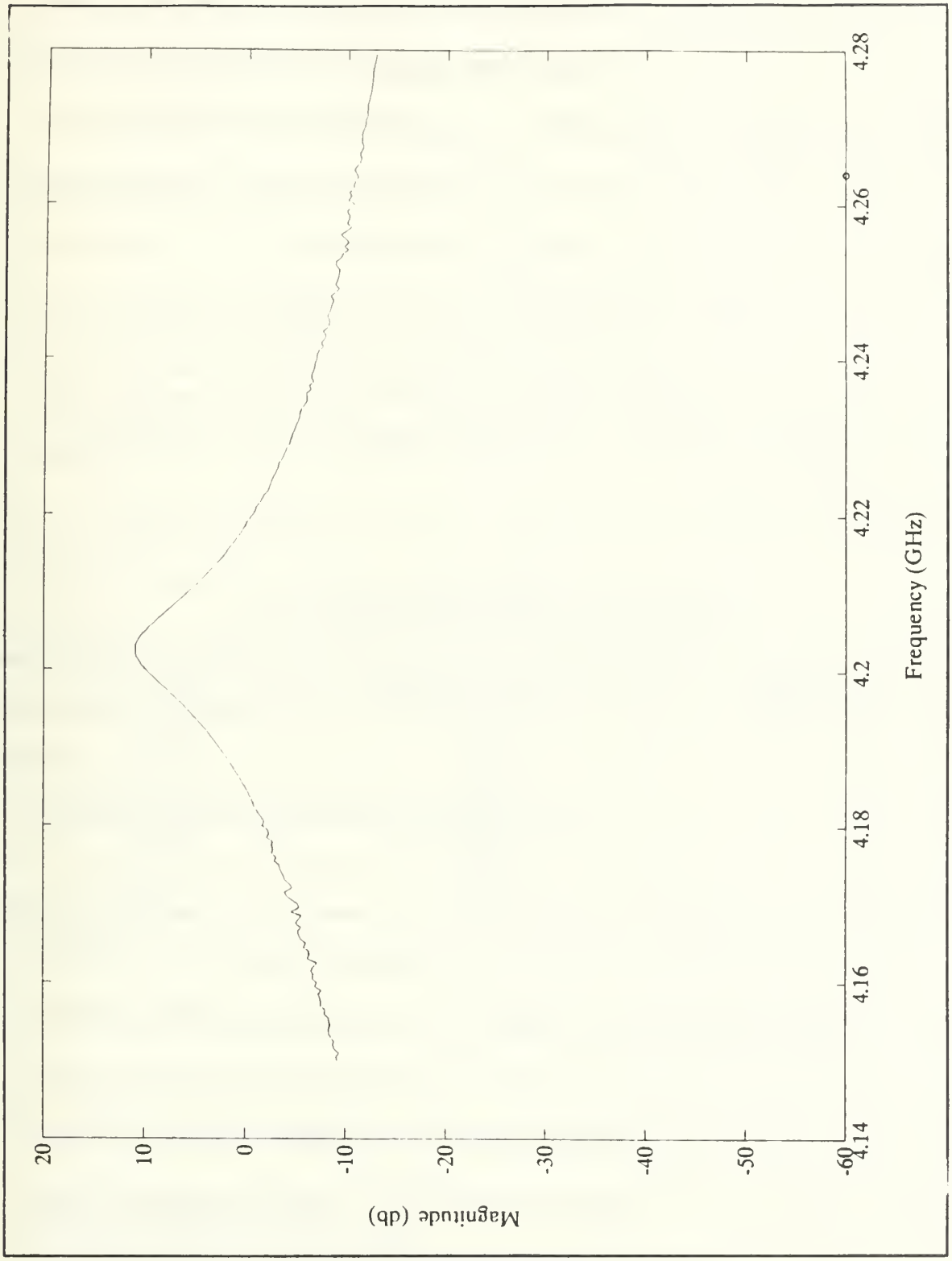

Figure 3.8 CYL 4 Normalization

A shift of approximately 2.5 dB between the pre- and post-test data is the result of a gain adjustment after the precalibration measurements had been conducted. The 2.5 dB difference is constant for all measurements; therefore, it is deemed unnecessary to repeat the tests to remove this apparent error. The normalized measurement data for the retest is presented in Appendix E.

The data from these measurements are in close agreement with the first measurements. The Q values are more sensitive to slight changes because of the narrow bandwidths involved. The revised resonance and Q calculations are presented in Table 3.4.

TABLE 3.4
EXPERIMENTAL MEASUREMENT OF Q

CYLINDER	FREQUENCY	Q
1	4.2265	402.5
2	4.2275	445.0
3	4.2065	442.8
4	4.2025	420.25

The conclusion from this data is that some misalignment occurred and would alter the value of Q calculated for each cylinder. The overall pattern of the Q values remains unchanged with no apparent explanation of why the value of Q for Cylinder #1 is smaller than the larger slotted cylinders. One possible reason may be the high level of background noise observed for Cylinder #1. Previous attempts to amplify the weak return signal of this cylinder using low noise solid state amplifiers were unsuccessful due to inadequate input signal sensitivity of the amplifiers. Since the

signal level decreases sharply from the resonance peak, system noise can broaden the power spectrum significantly, resulting in a lower value of measured Q.

Another factor may involve some frequency dependance on the thickness of the cylinders since the slot width of this particular cylinder is close to the wall thickness of the cylinder. This situation is beyond the scope of this thesis.

E. ANALYTICAL SOLUTION FOR E-FIELD COUPLING

The solution to this electromagnetic coupling problem can be obtained by matching the sum of the incident and the scattered waves to the waveguide field on the slot while requiring that the boundary conditions on the conducting wall of the cylinder be met. The relationship between the measured axial component of the electric field at the center of the cylinder and the electric field on the slot was derived by Professor H-M Lee. Major steps of his work are summarized in what follows.

Assume a plane wave with the propagation vector

$$\vec{k} = k_z \hat{z} - k_\rho \hat{x} \tag{3-3}$$

is incident on the cylinder, where $k_z > 0$, $k_\rho > 0$, and $\hat{z}$, $\hat{x}$ are unit vectors in the z and x directions, respectively. The z-component of the E-field is expressed as:

$$E_z^{in} = k_\rho V e^{ik_z z} \sum_{n=-\infty}^{\infty} e^{in\phi} (-i)^n J_n (k_\rho \rho) \tag{3-4}$$

where J_n is the Bessel function of order n. The waveguide field is expressed as:

$$E_z = k_\rho e^{ik_z z} \sum_{n=-\infty}^{\infty} e^{in\phi} (-i)^n V_n H_n^{(1)}(k_\rho a) J_n(k_\rho \rho) \tag{3-5}$$

Note that at $\rho = 0$,

$$E_z = k_\rho e^{ik_z z} V_0 H_0^{(1)}(k_\rho a) \tag{3-6}$$

Hence V_0 is proportional to the measured data.

The aperture field over the slot is written in terms of T_m, the Chebyshev polynomials of the first kind:

$$E_z^a = e^{ik_z z} \sqrt{\alpha_0^2 - \phi^2} \sum_{m=0}^{\infty} E_m T_m \left[\frac{\phi}{\alpha_0}\right] \tag{3-7}$$

Under the assumption of small aperture size, all but the first term, E_0, in the above expansion can be neglected:

$$E_z = e^{ik_z z} \sqrt{\alpha_0^2 - \phi^2}\, E_0 = e^{ik_z z} \alpha_0 \sqrt{1 - \left[\frac{\phi}{\alpha_0}\right]^2}\, E_0 \tag{3-8}$$

This expression implies that if E_0 is independent of the aperture size, then the E-field strength over the slot is directly proportional to the size of the aperture.

Since E_z of equation (3-5) vanishes for $|\phi| > \alpha_0$ and equals the aperture field E_z^a for $|\phi| < \alpha_0$, the zeroth order Fourier coefficient of E_z is related to the aperture field by:

$$\begin{aligned} 2\pi k_\rho e^{ik_z z} V_0 \, H_0^{(1)}(k_\rho a) J_0(k_\rho a) &= \int_{-\pi}^{\pi} E_z \, d\phi \\ &= \int_{-\alpha_0}^{\alpha_0} E_z \, d\phi \\ &= \int_{-\alpha_0}^{\alpha_0} E_z^a \, d\phi \\ &= \frac{1}{2} e^{ik_z z} \pi \alpha_0^2 E_0 \end{aligned} \tag{3-9}$$

Hence, the aperture field is linked to the measured data through the equation:

$$V_0 = \left[\frac{\alpha_0^2}{4 \, k_\rho \, J_0(k_\rho a) \, H_0^{(1)}(k_\rho a)} \right] E_0 \tag{3-10}$$

Figure 3.9 presents the results of a least square fit for two sets of measured resonance field strength data versus slot width on a log-log plot. The solid line is the best fit line for the resonance data of the TM_{010} mode and the dashed line is the best fit line to the resonance data for the TM_{020} mode. Because of the high level of noise in the measured data of Cylinder #1 as discussed in the previous section, they were omitted from the least square computation. As shown in the figure, the two lines appear to be parallel, with the nearly identical slopes of 2.1293 for the solid line and 2.0749 for the dashed line, respectively. This indicates that the data are fairly consistent across the test range regardless of the particular mode of excitation.

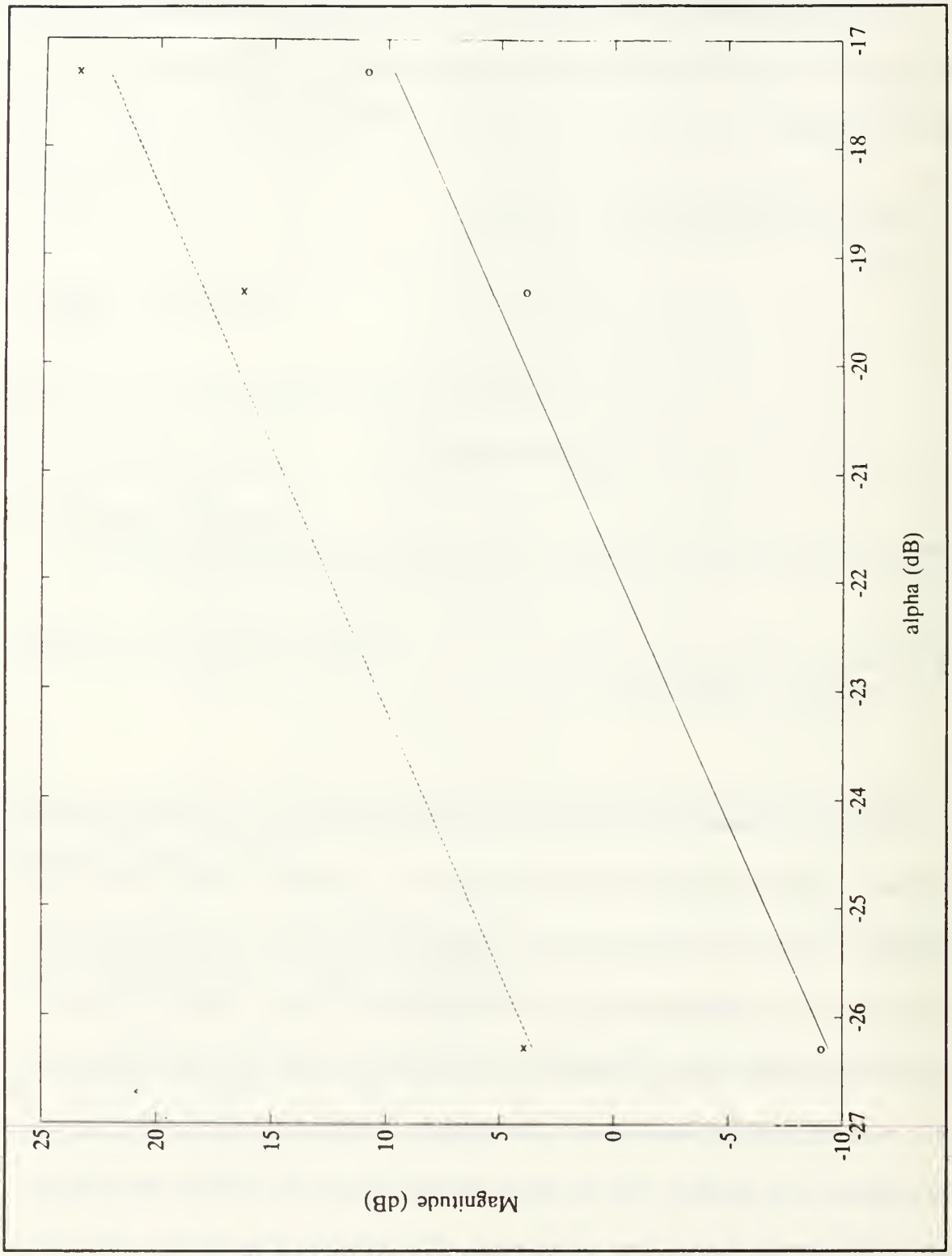

Figure 3.9 Least Squares Approximation

Given the fact that the best fit lines of the data in Figure 3.9 have a slope of two for two separate resonance modes, equation (3-10) implies that at resonance E_0 is independent of the width of the slot. Hence, the aperture field is linearly proportional to the slot size. This conclusion differs from the theory proposed by Harrington and Mautz [Ref. 8] that at resonance the E-field does not depend on the width of the aperture and that the amount of the TM field that enters a resonant circular cylindrical cavity does not depend on the width of the slot.

IV. SUMMARY

This chapter concludes the thesis with a summary of problems, conclusions, and recommendations.

A. PROBLEMS AND CONCLUSIONS

Problems encountered during the course of the research are categorized as either design, measurement, or analytical. They are addressed in the following paragraphs.

1. Design

Constructing a mechanical structure for high frequency electrical measurement is a challenging problem in itself. The most critical of the problems encountered was sealing the seams around the upper and the lower base of each cylinder. This requirement is crucial to accurate measurement of the total field and resonance frequencies because any seam or gap can result in inaccurate test results. Achieving this objective required several modifications to the original design before a useful model was constructed.

The slot machining process also presented a problem. Because of the thin wall, the heating during the slitting process resulted in an irregular expansion of the slot beyond the originally specified width. This affected the measured resonance frequencies and the associated Q's as discussed in the section on measured data and analysis.

2. Measurement

As clearly shown, normalized data are fairly consistent among various cylinder configurations largely due to a stable test platform. Cylinder misalignment can affect the accuracy of the measurement and cause variations in the computed Q values. This is evident from the results of the series of tests conducted in the 4.15 to 4.28 GHz range.

A slot of less than 0.1 inches width cannot be measured accurately in this test setup because of the presence of extensive background noise. Amplification of the return signal above the background noise using low noise solid state amplifiers was unsuccessful in resolving the problem. Further investigation of this measurement anomaly could not be conducted due to lack of equipment.

3. Analytical

A theoretical analysis of the E-field strength over the aperture lies beyond the scope of the thesis. Dr. Hung-Mou Lee's derivation of the theoretical relationship between the aperture field strength and the axial component of the E-field at the probe location enables the deduction of the behavior of aperture field strength from the measured results. Specifically, it is shown, counter to previously obtained theoretical results, that the E-field strength over the slot at a TM-mode resonance is proportional to the size of the aperture.

For further analysis and study, the results of this research will be forwarded to Sandia National Laboratory (Electromagnetic Analysis Division) where work of a similar nature is currently being conducted.

B. RECOMMENDATIONS

A stable test structure was designed, constructed, and tested satisfactorily. Because of the extensive amount of time in building and testing the test structure, the following questions were not addressed or examined. These questions are recommended as avenues for future research effort. They include:

- Analysis of other TM modes for a complete evaluation of the resonances and coupling characteristics for each cylinder configuration.

- The effects of different thicknesses and types of materials on resonance and the measurement of Q. This information can be beneficial in determining if frequency dependence exists when the slot width is comparable to the wall thickness.

- Examination of a different incidence angle on the cylinder slot. This would provide data on how the Q and the amplitude of the internal field vary as a function of the direction of the incident plane wave.

APPENDIX A
SLOT MEASUREMENT PROGRAM

```
1     ! THIS PROGRAM CONVERTS VOLTAGE
2     ! READINGS FROM THE DVM'S TO
3     ! MAGNITUDE AND PHASE INFORMATION
4     ! TO DETERMINE THE EFFECTS OF DIFFERENT
5     ! SLOT SIZES ON RESONANCE
10    OPTION BASE 1
20    DIM A(1000)! MAGNITUDE   ! ARRAY SIZE (FREQ)
30    DIM B(1000)! PHASE       ! ARRAY SIZE (MAG.)
40    DIM C(1000)! FREQUENCY   ! ARRAY SIZE (PHASE)
50    DIM D(1000)              ! OUTPUT ARRAY
60    F1=3.0  !STARTING FREQUENCY (GHz)
70    F2=13.1 !STOPPING FREQUENCY (GHz)
80    Df=.01 !STEPPING FREQUENCY (GHz)
90    Fn=(F2-F1)/Df+1    !NUMBER OF STEPS
100   CLEAR 7 ! CLEAR ALL EQUIP.UNDER HPIB CONTROL
110   REMOTE 7 ! TAKE REMOTE CHARGE OF ALL HPIB EQUIP.
120   OUTPUT 719;"CW2.0GZPL10DB" ! CMD. HP-8341B TO START INITIAL SWEEP AT
121   ! 2.0 GHz AT PWR.LEVEL OF 10dBm
130   WAIT .1   ! WAIT FOR STABILIZATION
140   MASS STORAGE IS ":INTERNAL,4,1"   ! DUMP DATA TO THIS FILE
150   !A$ IS FILE STORING CAL DATA
160   ! C$ IS FILE STORING 1st RUN READINGS
170   ! D$ IS FILE STORING 2nd RUN READINGS
180   ! E$ IS FILE STORING 3rd RUN READINGS
190   M$=":INTERNAL,4,1"
200   A$="CAL1"
210   C$="RUN1DATA"
220   D$="RUN2DATA"
230   E$="RUN3DATA"
240   !PURGE A$
250   Dn=3*Fn ! COUNTER
260   CREATE BDAT A$,Dn,8   ! CREATE OUTPUT FILE
270   ASSIGN @Path1 TO A$   ! OPEN PATH TO OUTPUT FILE
280   N0=3   ! NUMBER OF MEASUREMENTS PER CYCLE
290      FOR I=1 TO Fn   ! LOOP COUNTER
300      F=F1+Df*(I-1)
310   OUTPUT 719;"CW";F;"GZPL10DB" ! CONDUCT CW SWEEP AT 10 dBm
320   WAIT .5   ! WAIT FOR FREQ STABILIZATION
330    V1=0   !PARAMETERS FOR AVERAGING
340    P1=0   ! PARAMETERS FOR AVERAGING
350    FOR L=1 TO N0 ! COUNTER
360   OUTPUT 720;"P0F1R1T1Z1FL0M0""MAGNITUDE"
370   OUTPUT 722;"F1R7T1M3A0H1""PHASE (DEGREES)"
380   WAIT .1
390   ENTER 720;V
400   V1=V1+V
410   ENTER 722;P
420   P1=P1+P
430   NEXT L
440   V=V1/N0
450   P=P1/N0
460   A(I)=20*V
470   B(I)=100*P
480   C(I)=F
490   PRINT "FREQUENCY";C(I)
500   PRINT "MAGNITUDE";A(I)
510   PRINT "PHASE";B(I)
520    OUTPUT @Path1;C(I),B(I),A(I) ! DUMP FREQ.,MAG.,PHASE DATA TO THIS PATH
530   NEXT I
540    OUTPUT 719;"CW2.3GZPL10DB" !RESET THE 8341B TO 2.3 GHz
550   ASSIGN @Path1 TO "CAL1"
560   ENTER @Path1;D(*) !CLOSE PATH
570     FOR J=1 TO Fn
580      PRINT D(J)
590     NEXT J
600     END
```

APPENDIX B

CYLINDER #1

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
3.0000	-54.8411	3.6500	-59.1653	4.3000	-33.8966	4.9500	-55.1011	5.6000	-55.3352
3.0100	-54.8390	3.6600	-60.2188	4.3100	-36.5266	4.9600	-49.3235	5.6100	-53.2835
3.0200	-54.6059	3.6700	-60.3102	4.3200	-40.0592	4.9700	-39.7517	5.6200	-52.0740
3.0300	-49.5628	3.6800	-59.1351	4.3300	-47.0505	4.9800	-39.8681	5.6300	-52.2773
3.0400	-47.3472	3.6900	-57.2965	4.3400	-54.6173	4.9900	-43.7980	5.6400	-51.9931
3.0500	-50.0019	3.7000	-55.6556	4.3500	-53.1279	5.0000	-46.0419	5.6500	-51.5406
3.0600	-47.7198	3.7100	-53.9457	4.3600	-49.7821	5.0100	-48.8025	5.6600	-51.6579
3.0700	-53.1177	3.7200	-53.5883	4.3700	-43.4552	5.0200	-53.1396	5.6700	-51.2887
3.0800	-57.8987	3.7300	-53.9203	4.3800	-38.9800	5.0300	-55.2208	5.6800	-52.8907
3.0900	-56.9602	3.7400	-55.3720	4.3900	-38.9245	5.0400	-54.8192	5.6900	-54.0047
3.1000	-58.3488	3.7500	-57.5530	4.4000	-40.3232	5.0500	-53.6480	5.7000	-53.8419
3.1100	-60.2343	3.7600	-59.0078	4.4100	-41.7993	5.0600	-51.7865	5.7100	-53.5897
3.1200	-62.1057	3.7700	-58.4199	4.4200	-43.4546	5.0700	-49.4665	5.7200	-51.7025
3.1300	-59.1719	3.7800	-57.0205	4.4300	-45.6017	5.0800	-41.4049	5.7300	-52.1750
3.1400	-56.6193	3.7900	-55.2507	4.4400	-42.7635	5.0900	-36.1985	5.7400	-52.7682
3.1500	-56.4723	3.8000	-53.7290	4.4500	-41.0093	5.1000	-34.2408	5.7500	-54.1357
3.1600	-58.3550	3.8100	-53.3489	4.4600	-37.5471	5.1100	-31.4223	5.7600	-54.8915
3.1700	-57.1943	3.8200	-54.5653	4.4700	-38.5358	5.1200	-28.2881	5.7700	-56.4617
3.1800	-57.7443	3.8300	-56.7294	4.4800	-41.3985	5.1300	-26.7188	5.7800	-57.3872
3.1900	-60.3352	3.8400	-58.6127	4.4900	-43.1900	5.1400	-31.4135	5.7900	-57.4429
3.2000	-61.7696	3.8500	-58.3393	4.5000	-45.2866	5.1500	-36.5527	5.8000	-56.1865
3.2100	-62.3701	3.8600	-57.5191	4.5100	-47.8884	5.1600	-41.6219	5.8100	-56.4247
3.2200	-62.9107	3.8700	-56.1383	4.5200	-51.7427	5.1700	-45.4294	5.8200	-56.4905
3.2300	-61.3804	3.8800	-53.8735	4.5300	-56.9154	5.1800	-50.3977	5.8300	-56.4977
3.2400	-59.8475	3.8900	-52.1117	4.5400	-56.3326	5.1900	-53.1489	5.8400	-56.7289
3.2500	-58.3766	3.9000	-51.8112	4.5500	-50.2295	5.2000	-54.5320	5.8500	-56.7177
3.2600	-57.7983	3.9100	-52.8689	4.5600	-46.9500	5.2100	-57.2425	5.8600	-56.8733
3.2700	-56.4447	3.9200	-54.2385	4.5700	-44.8463	5.2200	-59.0237	5.8700	-56.3638
3.2800	-57.7851	3.9300	-54.6921	4.5800	-46.3332	5.2300	-59.5936	5.8800	-53.9244
3.2900	-58.3682	3.9400	-55.1550	4.5900	-49.1776	5.2400	-58.0859	5.8900	-54.6511
3.3000	-60.6462	3.9500	-54.1426	4.6000	-53.6391	5.2500	-54.5919	5.9000	-56.3632
3.3100	-62.2703	3.9600	-51.6801	4.6100	-54.9471	5.2600	-53.2355	5.9100	-55.4133
3.3200	-63.8862	3.9700	-49.4909	4.6200	-54.9906	5.2700	-55.5273	5.9200	-55.9047
3.3300	-63.8453	3.9800	-49.0445	4.6300	-52.2631	5.2800	-58.3101	5.9300	-56.6647
3.3400	-62.8185	3.9900	-48.8737	4.6400	-50.1487	5.2900	-59.4247	5.9400	-58.5170
3.3500	-61.0345	4.0000	-49.9412	4.6500	-49.4461	5.3000	-59.4211	5.9500	-58.0691
3.3600	-60.5773	4.0100	-51.1299	4.6600	-49.3663	5.3100	-59.7191	5.9600	-55.7515
3.3700	-61.0802	4.0200	-50.2947	4.6700	-50.0497	5.3200	-58.4513	5.9700	-54.2056
3.3800	-62.7993	4.0300	-47.9974	4.6800	-53.1723	5.3300	-57.8045	5.9800	-53.8344
3.3900	-63.3794	4.0400	-44.3432	4.6900	-56.2494	5.3400	-57.6388	5.9900	-53.2799
3.4000	-63.1139	4.0500	-40.1983	4.7000	-56.7893	5.3500	-58.2251	6.0000	-53.3249
3.4100	-61.8473	4.0600	-37.4914	4.7100	-54.5344	5.3600	-58.4235	6.0100	-53.8175
3.4200	-61.1227	4.0700	-36.8619	4.7200	-51.8724	5.3700	-58.5226	6.0200	-55.2289
3.4300	-59.9395	4.0800	-36.4309	4.7300	-50.0597	5.3800	-58.5726	6.0300	-55.0401
3.4400	-59.0763	4.0900	-38.3949	4.7400	-50.4050	5.3900	-59.6985	6.0400	-53.8444
3.4500	-57.5385	4.1000	-40.6927	4.7500	-53.1538	5.4000	-61.6658	6.0500	-53.3344
3.4600	-58.6463	4.1100	-41.9207	4.7600	-55.1567	5.4100	-57.4546	6.0600	-54.2455
3.4700	-59.3788	4.1200	-40.7126	4.7700	-56.1087	5.4200	-54.4988	6.0700	-54.1751
3.4800	-60.7534	4.1300	-38.0495	4.7800	-58.0185	5.4300	-55.6819	6.0800	-54.5040
3.4900	-61.7993	4.1400	-35.7474	4.7900	-57.7305	5.4400	-55.7458	6.0900	-57.2270
3.5000	-61.6649	4.1500	-33.6449	4.8000	-56.0549	5.4500	-56.0493	6.1000	-57.6335
3.5100	-61.6716	4.1600	-32.1996	4.8100	-54.9849	5.4600	-55.1485	6.1100	-58.1314
3.5200	-60.1659	4.1700	-30.2489	4.8200	-54.5512	5.4700	-55.5519	6.1200	-59.1677
3.5300	-59.0273	4.1800	-28.7376	4.8300	-55.3555	5.4800	-55.8800	6.1300	-60.1211
3.5400	-58.6425	4.1900	-27.1575	4.8400	-55.5485	5.4900	-56.4765	6.1400	-59.2491
3.5500	-59.1673	4.2000	-25.1828	4.8500	-55.3683	5.5000	-57.4105	6.1500	-56.3113
3.5600	-61.1624	4.2100	-22.1137	4.8600	-55.8962	5.5100	-58.5641	6.1600	-55.7475
3.5700	-63.3815	4.2200	-16.6394	4.8700	-56.5249	5.5200	-59.2502	6.1700	-52.1559
3.5800	-63.3909	4.2300	-8.4913	4.8800	-56.4974	5.5300	-57.7932	6.1800	-49.0253
3.5900	-62.6115	4.2400	-15.8005	4.8900	-55.6844	5.5400	-56.5903	6.1900	-50.2601
3.6000	-61.2160	4.2500	-20.4745	4.9000	-52.4336	5.5500	-55.4817	6.2000	-51.8659
3.6100	-60.3423	4.2600	-24.2429	4.9100	-50.7646	5.5600	-55.2968	6.2100	-52.4632
3.6200	-58.2251	4.2700	-26.8245	4.9200	-51.2720	5.5700	-54.3255	6.2200	-51.8990
3.6300	-57.6353	4.2800	-29.0007	4.9300	-55.7193	5.5800	-55.0176	6.2300	-47.0523
3.6400	-57.5998	4.2900	-31.1385	4.9400	-59.4015	5.5900	-55.6069	6.2400	-52.0502

6.4000	-52.4181	7.0900	-40.9105	7.7800	-60.6561	8.4700	-46.1117	9.1600	-33.0974
6.4100	-48.3221	7.1000	-41.5153	7.7900	-58.1657	8.4800	-45.8427	9.1700	-32.3873
6.4200	-48.6261	7.1100	-45.5286	7.8000	-55.2663	8.4900	-44.6633	9.1800	-33.5332
6.4300	-47.4463	7.1200	-41.1237	7.8100	-51.6513	8.5000	-44.0127	9.1900	-35.1475
6.4400	-50.5672	7.1300	-35.7623	7.8200	-49.3756	8.5100	-42.5315	9.2000	-36.3374
6.4500	-54.6420	7.1400	-29.7874	7.8300	-51.5687	8.5200	-41.8688	9.2100	-36.4792
6.4600	-55.5064	7.1500	-25.9695	7.8400	-56.8379	8.5300	-41.6103	9.2200	-36.3018
6.4700	-53.4319	7.1600	-22.5558	7.8500	-58.5275	8.5400	-42.2849	9.2300	-35.3892
6.4800	-50.9489	7.1700	-14.2562	7.8600	-56.3395	8.5500	-43.5489	9.2400	-34.5788
6.4900	-52.8100	7.1800	-22.0726	7.8700	-53.7237	8.5600	-43.6403	9.2500	-34.9260
6.5000	-53.5051	7.1900	-24.1498	7.8800	-53.6449	8.5700	-43.8859	9.2600	-34.7728
6.5100	-48.3099	7.2000	-24.4565	7.8900	-52.0030	8.5800	-43.9354	9.2700	-35.6744
6.5200	-43.0883	7.2100	-25.0460	7.9000	-52.2419	8.5900	-43.0862	9.2800	-36.3024
6.5300	-40.2591	7.2200	-28.1737	7.9100	-52.6098	8.6000	-42.3851	9.2900	-37.0645
6.5400	-39.3341	7.2300	-32.6631	7.9200	-54.1639	8.6100	-41.8315	9.3000	-36.5472
6.5500	-49.0126	7.2400	-35.0426	7.9300	-56.1812	8.6200	-41.8484	9.3100	-36.2195
6.5600	-55.2472	7.2500	-36.9161	7.9400	-55.8933	8.6300	-43.0933	9.3200	-35.7338
6.5700	-56.2163	7.2600	-38.5085	7.9500	-56.4057	8.6400	-42.9420	9.3300	-36.7012
6.5800	-56.4149	7.2700	-40.3953	7.9600	-55.0759	8.6500	-42.6457	9.3400	-38.1396
6.5900	-58.6417	7.2800	-44.4969	7.9700	-43.5435	8.6600	-43.6583	9.3500	-39.0537
6.6000	-59.9033	7.2900	-47.5172	7.9800	-57.9609	8.6700	-44.2589	9.3600	-38.4124
6.6100	-55.9085	7.3000	-45.1658	7.9900	-55.3835	8.6800	-44.3532	9.3700	-39.6318
6.6200	-51.6593	7.3100	-44.2681	8.0000	-40.1527	8.6900	-44.2884	9.3800	-40.0277
6.6300	-48.6895	7.3200	-43.2523	8.0100	-58.6553	8.7000	-44.1485	9.3900	-36.8122
6.6400	-47.5471	7.3300	-47.1311	8.0200	-59.4465	8.7100	-43.4673	9.4000	-34.5644
6.6500	-49.2590	7.3400	-53.6943	8.0300	-60.7194	8.7200	-44.2635	9.4100	-35.0689
6.6600	-49.8677	7.3500	-60.1132	8.0400	-62.6105	8.7300	-43.9608	9.4200	-42.9093
6.6700	-43.4327	7.3600	-47.3702	8.0500	-62.3209	8.7400	-44.1897	9.4300	-39.4542
6.6800	-36.6129	7.3700	-49.0264	8.0600	-56.1081	8.7500	-43.7830	9.4400	-37.3722
6.6900	-32.8805	7.3800	-53.8657	8.0700	-47.7985	8.7600	-43.8478	9.4500	-38.4390
6.7000	-42.5168	7.3900	-48.3137	8.0800	-44.6647	8.7700	-44.2941	9.4600	-38.4112
6.7100	-42.7141	7.4000	-56.8567	8.0900	-46.6195	8.7800	-44.0524	9.4700	-38.0061
6.7200	-38.1765	7.4100	-56.6072	8.1000	-50.8599	8.7900	-42.1467	9.4800	-38.3729
6.7300	-35.2225	7.4200	-51.3968	8.1100	-54.1707	8.8000	-42.5050	9.4900	-38.8214
6.7400	-33.2872	7.4300	-46.9430	8.1200	-55.0064	8.8100	-39.1045	9.5000	-38.5419
6.7500	-32.0116	7.4400	-45.3940	8.1300	-52.2439	8.8200	-44.8222	9.5100	-38.1293
6.7600	-27.7171	7.4500	-48.4643	8.1400	-50.6744	8.8300	-46.3616	9.5200	-37.8238
6.7700	-33.0004	7.4600	-50.9753	8.1500	-50.0032	8.8400	-52.6021	9.5300	-33.8259
6.7800	-35.1272	7.4700	-46.9097	8.1600	-50.6046	8.8500	-46.6646	9.5400	-34.8482
6.7900	-34.5717	7.4800	-42.2854	8.1700	-55.3564	8.8600	-43.8606	9.5500	-36.8776
6.8000	-40.1841	7.4900	-42.6665	8.1800	-58.4417	8.8700	-42.0971	9.5600	-35.6609
6.8100	-46.2633	7.5000	-48.4755	8.1900	-60.4307	8.8800	-40.6324	9.5700	-34.4662
6.8200	-55.1745	7.5100	-54.1763	8.2000	-60.5310	8.8900	-39.1052	9.5800	-33.9089
6.8300	-61.1984	7.5200	-52.2995	8.2100	-59.2271	8.9000	-39.5185	9.5900	-34.0542
6.8400	-59.4541	7.5300	-44.0952	8.2200	-55.9282	8.9100	-39.3220	9.6000	-34.9850
6.8500	-60.8480	7.5400	-39.9090	8.2300	-50.6610	8.9200	-40.2189	9.6100	-36.1789
6.8600	-58.2626	7.5500	-43.4241	8.2400	-48.5625	8.9300	-41.0414	9.6200	-36.6699
6.8700	-58.2522	7.5600	-48.8269	8.2500	-48.7905	8.9400	-45.4452	9.6300	-36.6052
6.8800	-60.5195	7.5700	-56.0282	8.2600	-53.2414	8.9500	-36.3163	9.6400	-35.7214
6.8900	-60.5826	7.5800	-57.8612	8.2700	-56.2749	8.9600	-35.1366	9.6500	-34.1510
6.9000	-56.3831	7.5900	-55.0995	8.2800	-58.7041	8.9700	-33.6188	9.6600	-33.9309
6.9100	-49.6921	7.6000	-52.9003	8.2900	-57.4039	8.9800	-35.3203	9.6700	-32.5626
6.9200	-43.7799	7.6100	-51.6207	8.3000	-57.4498	8.9900	-34.3458	9.6800	-31.2274
6.9300	-41.2771	7.6200	-48.3732	8.3100	-56.3394	9.0000	-34.8120	9.6900	-32.5461
6.9400	-39.8847	7.6300	-48.6174	8.3200	-57.3974	9.0100	-34.2895	9.7000	-32.7346
6.9500	-38.8722	7.6400	-54.8621	8.3300	-57.0513	9.0200	-33.8343	9.7100	-32.4721
6.9600	-38.6871	7.6500	-59.0919	8.3400	-55.7857	9.0300	-32.2780	9.7200	-31.0954
6.9700	-41.2695	7.6600	-58.9523	8.3500	-53.8809	9.0400	-31.1278	9.7300	-30.8050
6.9800	-44.6331	7.6700	-58.5676	8.3600	-55.4576	9.0500	-29.1041	9.7400	-30.3002
6.9900	-49.8517	7.6800	-58.3675	8.3700	-53.0045	9.0600	-24.8892	9.7500	-30.6074
7.0000	-51.7137	7.6900	-60.2837	8.3800	-49.4881	9.0700	-15.9656	9.7600	-26.7372
7.0100	-48.9395	7.7000	-62.0177	8.3900	-42.5209	9.0800	-28.2008	9.7700	-28.0887
7.0200	-45.7409	7.7100	-62.0850	8.4000	-42.6224	9.0900	-50.7227	9.7800	-28.0077
7.0300	-46.6538	7.7200	-61.1198	8.4100	-43.8818	9.1000	-40.6991	9.7900	-27.5885
7.0400	-52.6146	7.7300	-59.9438	8.4200	-42.6957	9.1100	-34.4645	9.8000	-26.8439
7.0500	-53.6065	7.7400	-59.1441	8.4300	-42.4294	9.1200	-33.1698	9.8100	-26.4319
7.0600	-50.6674	7.7500	-60.1773	8.4400	-43.0063	9.1300	-34.2258	9.8200	-26.4008
7.0700	-45.7763	7.7600	-61.8180	8.4500	-43.6891	9.1400	-34.8315	9.8300	-26.1738
7.0800	-42.0001	7.7700	-60.9569	8.4600	-44.7660	9.1500	-34.4695	9.8400	-25.4801

9.8500	-24.2835	10.5400	-43.0314	11.2300	-34.7222	11.9200	-36.6964	12.6100	-44.5437
9.8600	-22.7871	10.5500	-42.5924	11.2400	-35.9857	11.9300	-37.3536	12.6200	-27.4485
9.8700	-20.1752	10.5600	-41.6666	11.2500	-35.8940	11.9400	-39.8704	12.6300	-43.9591
9.8800	-17.3250	10.5700	-41.4447	11.2600	-36.5465	11.9500	-39.8438	12.6400	-44.4630
9.8900	-14.4792	10.5800	-40.1267	11.2700	-40.5901	11.9600	-38.6569	12.6500	-44.0346
9.9000	-12.5496	10.5900	-39.5484	11.2800	-27.8329	11.9700	-38.3034	12.6600	-41.5134
9.9100	-10.8196	10.6000	-40.7859	11.2900	-30.6396	11.9800	-40.1869	12.6700	-36.8160
9.9200	-5.2108	10.6100	-41.4115	11.3000	-32.2833	11.9900	-43.0684	12.6800	-37.6632
9.9300	2.1115	10.6200	-42.1214	11.3100	-33.6414	12.0000	-44.7680	12.6900	-31.2584
9.9400	2.7207	10.6300	-39.4469	11.3200	-35.4836	12.0100	-45.8311	12.7000	-13.8691
9.9500	-4.6751	10.6400	-35.3019	11.3300	-34.4899	12.0200	-46.2267	12.7100	-40.8999
9.9600	-12.1946	10.6500	-33.5490	11.3400	-36.2576	12.0300	-45.7445	12.7200	-43.0184
9.9700	-17.4330	10.6600	-32.2769	11.3500	-35.0034	12.0400	-43.8977	12.7300	-28.3681
9.9800	-20.4457	10.6700	-31.5757	11.3600	-34.8325	12.0500	-44.2123	12.7400	-44.5158
9.9900	-19.9007	10.6800	-32.4759	11.3700	-34.7604	12.0600	-45.1603	12.7500	-44.0346
10.0000	-21.6489	10.6900	-32.6882	11.3800	-34.2497	12.0700	-47.6388	12.7600	-49.3483
10.0100	-26.9975	10.7000	-32.5795	11.3900	-35.0148	12.0800	-49.3958	12.7700	-46.5396
10.0200	-30.3660	10.7100	-32.4075	11.4000	-35.3789	12.0900	-48.1671	12.7800	-47.9654
10.0300	-35.4173	10.7200	-31.8299	11.4100	-36.4529	12.1000	-46.5257	12.7900	-49.4007
10.0400	-37.9151	10.7300	-29.8368	11.4200	-35.9185	12.1100	-47.5253	12.8000	-49.8230
10.0500	-39.2449	10.7400	-25.1827	11.4300	-36.1657	12.1200	-44.9380	12.8100	-49.0104
10.0600	-39.7361	10.7500	-25.7535	11.4400	-35.7173	12.1300	-42.9667	12.8200	-48.8691
10.0700	-39.5492	10.7600	-27.6513	11.4500	-35.6714	12.1400	-39.6574	12.8300	-49.0559
10.0800	-41.5210	10.7700	-28.3944	11.4600	-36.3280	12.1500	-40.3591	12.8400	-49.5145
10.0900	-45.4801	10.7800	-27.3578	11.4700	-36.6865	12.1600	-39.6801	12.8500	-49.3381
10.1000	-50.6189	10.7900	-19.5954	11.4800	-38.2017	12.1700	-40.6886	12.8600	-50.3417
10.1100	-52.4967	10.8000	-46.9811	11.4900	-38.8128	12.1800	-37.1714	12.8700	-48.4068
10.1200	-50.6300	10.8100	-33.6897	11.5000	-39.9676	12.1900	-27.5779	12.8800	-46.2205
10.1300	-50.8589	10.8200	-26.3632	11.5100	-37.8060	12.2000	-38.1856	12.8900	-52.3025
10.1400	-51.8293	10.8300	-23.5901	11.5200	-37.5529	12.2100	-49.2899	12.9000	-52.5603
10.1500	-54.2042	10.8400	-23.8104	11.5300	-35.8333	12.2200	-40.7290	12.9100	-53.3962
10.1600	-55.8958	10.8500	-25.9428	11.5400	-34.7554	12.2300	-36.7366	12.9200	-53.2915
10.1700	-56.6558	10.8600	-27.4645	11.5500	-33.8378	12.2400	-38.0131	12.9300	-51.8427
10.1800	-57.9245	10.8700	-26.7761	11.5600	-34.1995	12.2500	-44.3462	12.9400	-50.6011
10.1900	-58.3650	10.8800	-27.1755	11.5700	-35.9369	12.2600	-49.7000	12.9500	-51.9731
10.2000	-59.5221	10.8900	-27.2653	11.5800	-36.2117	12.2700	-51.8452	12.9600	-52.8042
10.2100	-61.4509	10.9000	-26.9045	11.5900	-36.2054	12.2800	-49.7453	12.9700	-52.8839
10.2200	-64.1260	10.9100	-26.9419	11.6000	-35.2312	12.2900	-48.5461	12.9800	-51.9944
10.2300	-65.1061	10.9200	-28.3582	11.6100	-33.5583	12.3000	-48.4327	12.9900	-53.4677
10.2400	-64.0107	10.9300	-29.7523	11.6200	-31.7784	12.3100	-37.6583		
10.2500	-63.5884	10.9400	-29.6218	11.6300	-30.4773	12.3200	-31.0571		
10.2600	-63.3865	10.9500	-29.6898	11.6400	-30.1401	12.3300	-31.6252		
10.2700	-62.6705	10.9600	-29.3603	11.6500	-33.3376	12.3400	-33.3555		
10.2800	-61.4557	10.9700	-29.9503	11.6600	-34.0914	12.3500	-38.7974		
10.2900	-60.7817	10.9800	-30.0702	11.6700	-35.9467	12.3600	-37.8608		
10.3000	-60.8537	10.9900	-31.4502	11.6800	-35.8819	12.3700	-34.4591		
10.3100	-60.5605	11.0000	-32.0713	11.6900	-37.8476	12.3800	-26.0415		
10.3200	-62.6892	11.0100	-33.8428	11.7000	-39.1294	12.3900	-8.5557		
10.3300	-62.3665	11.0200	-35.0142	11.7100	-36.8194	12.4000	-29.8208		
10.3400	-62.6565	11.0300	-36.1329	11.7200	-38.8480	12.4100	-44.0076		
10.3500	-62.0943	11.0400	-34.7438	11.7300	-41.5673	12.4200	-46.6960		
10.3600	-61.7484	11.0500	-33.4206	11.7400	-41.5629	12.4300	-41.4229		
10.3700	-58.2860	11.0600	-30.4611	11.7500	-41.2629	12.4400	-39.5896		
10.3800	-57.1516	11.0700	-29.9847	11.7600	-43.0655	12.4500	-28.3247		
10.3900	-56.7320	11.0800	-33.6051	11.7700	-40.6748	12.4600	-28.2138		
10.4000	-56.8782	11.0900	-27.6310	11.7800	-41.3743	12.4700	-34.1092		
10.4100	-58.2263	11.1000	-35.3049	11.7900	-39.3113	12.4800	-45.3738		
10.4200	-57.2012	11.1100	-30.8112	11.8000	-37.7153	12.4900	-47.0271		
10.4300	-53.8809	11.1200	-36.6877	11.8100	-38.0201	12.5000	-43.9595		
10.4400	-53.1702	11.1300	-35.6703	11.8200	-38.1769	12.5100	-41.5133		
10.4500	-53.4189	11.1400	-35.1027	11.8300	-39.0129	12.5200	-40.9349		
10.4600	-53.2348	11.1500	-32.9027	11.8400	-39.3562	12.5300	-41.5657		
10.4700	-51.7436	11.1600	-31.5031	11.8500	-37.5958	12.5400	-43.7355		
10.4800	-52.4644	11.1700	-29.5581	11.8600	-36.1539	12.5500	-43.4873		
10.4900	-51.2964	11.1800	-31.2528	11.8700	-34.3579	12.5600	-41.7049		
10.5000	-49.3799	11.1900	-32.2896	11.8800	-33.8394	12.5700	-41.8783		
10.5100	-47.2990	11.2000	-33.4825	11.8900	-33.9882	12.5800	-43.0457		
10.5200	-44.9561	11.2100	-33.8978	11.9000	-34.6501	12.5900	-40.6809		
10.5300	-43.4228	11.2200	-34.6928	11.9100	-35.7267	12.6000	-40.8527		

CYLINDER #2

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
3.0000	-55.6794	3.6500	-63.1819	4.3000	-40.1441	4.9500	-60.5853	5.6000	-58.5903
3.0100	-54.2890	3.6600	-62.8639	4.3100	-42.8055	4.9600	-55.4373	5.6100	-55.8164
3.0200	-55.4981	3.6700	-61.9613	4.3200	-46.4833	4.9700	-45.2559	5.6200	-55.8245
3.0300	-49.8170	3.6800	-60.7132	4.3300	-49.6629	4.9800	-44.5535	5.6300	-55.2589
3.0400	-47.7593	3.6900	-60.0959	4.3400	-51.9805	4.9900	-49.8657	5.6400	-55.4205
3.0500	-51.1409	3.7000	-59.5801	4.3500	-51.1556	5.0000	-52.4510	5.6500	-54.8831
3.0600	-48.1077	3.7100	-59.4691	4.3600	-50.7909	5.0100	-55.6021	5.6600	-54.7857
3.0700	-53.4175	3.7200	-59.0003	4.3700	-49.1173	5.0200	-55.8212	5.6700	-54.2953
3.0800	-58.5582	3.7300	-58.1415	4.3800	-49.0761	5.0300	-57.5941	5.6800	-56.7947
3.0900	-58.7859	3.7400	-59.0091	4.3900	-48.5219	5.0400	-56.8511	5.6900	-57.7355
3.1000	-58.0287	3.7500	-61.1221	4.4000	-52.8134	5.0500	-56.8355	5.7000	-57.8036
3.1100	-60.3782	3.7600	-61.9515	4.4100	-54.5423	5.0600	-54.8529	5.7100	-55.2854
3.1200	-63.6566	3.7700	-61.8364	4.4200	-55.7145	5.0700	-54.1046	5.7200	-54.5477
3.1300	-59.9330	3.7800	-61.2747	4.4300	-55.4473	5.0800	-51.5478	5.7300	-55.3498
3.1400	-56.2717	3.7900	-60.3679	4.4400	-52.6880	5.0900	-51.1593	5.7400	-56.8149
3.1500	-56.2369	3.8000	-59.6971	4.4500	-51.1008	5.1000	-48.8930	5.7500	-57.5006
3.1600	-59.5255	3.8100	-59.4720	.4600	-53.3930	5.1100	-40.9783	5.7600	-58.9194
3.1700	-58.8337	3.8200	-60.3979	.4700	-57.1143	5. 00	-36.2893	5.7700	-57.9190
3.1800	-58.9998	3.8300	-61.0525	4.4800	-56.8615	5. 00	-35.2602	5.7800	-59.6974
3.1900	-62.0589	3.8400	-61.8522	4.4900	-50.9398	5. 00	-42.9442	5.7900	-59.7747
3.2000	-64.1328	3.8500	-61.3327	4.5000	-51.1962	5.1500	-52.0862	5.8000	-60.1521
3.2100	-62.8721	3.8600	-60.4105	4.5100	-55.3101	5.1600	-55.1797	5.8100	-60.4487
3.2200	-63.3992	3.8700	-60.0267	4.5200	-57.9550	5.1700	-55.5872	5.8200	-61.3232
3.2300	-61.9428	3.8800	-59.1098	4.5300	-57.1030	5.1800	-56.2426	5.8300	-61.4759
3.2400	-60.3008	3.8900	-59.0691	4.5400	-56.6793	5.1900	-57.2185	5.8400	-61.0474
3.2500	-60.4077	3.9000	-58.3159	4.5500	-55.9887	5.2000	-58.0625	5.8500	-59.6352
3.2600	-59.3083	3.9100	-58.9342	4.5600	-56.5088	5.2100	-59.1667	5.8600	-60.6175
3.2700	-59.7941	3.9200	-57.7823	4.5700	-55.3034	5.2200	-59.5545	5.8700	-60.3337
3.2800	-60.9003	3.9300	-58.6821	4.5800	-56.2297	5.2300	-59.4329	5.8800	-59.2503
3.2900	-61.7726	3.9400	-59.4051	4.5900	-57.7941	5.2400	-58.0928	5.8900	-58.4550
3.3000	-62.2410	3.9500	-59.2974	4.6000	-60.3506	5.2500	-56.5712	5.9000	-56.0639
3.3100	-63.3803	3.9600	-58.8452	4.6100	-58.7695	5.2600	-57.9403	5.9100	-57.3975
3.3200	-64.6603	3.9700	-57.9121	4.6200	-58.9061	5.2700	-58.3370	5.9200	-57.8992
3.3300	-65.4667	3.9800	-57.7213	4.6300	-57.2119	5.2800	-57.0438	5.9300	-58.1990
3.3400	-64.4311	3.9900	-58.1755	4.6400	-57.2274	5.2900	-57.7159	5.9400	-59.3551
3.3500	-62.9759	4.0000	-59.4340	4.6500	-57.6706	5.3000	-59.5617	5.9500	-60.4251
3.3600	-63.2637	4.0100	-60.0377	4.6600	-58.7997	5.3100	-59.4057	5.9600	-58.7431
3.3700	-63.6281	4.0200	-60.2829	4.6700	-59.7305	5.3200	-57.8726	5.9700	-56.3749
3.3800	-66.0603	4.0300	-60.4989	4.6800	-58.4711	5.3300	-56.2861	5.9800	-54.4456
3.3900	-65.3885	4.0400	-57.8021	4.6900	-60.3959	5.3400	-56.8743	5.9900	-54.6112
3.4000	-63.9229	4.0500	-55.1765	4.7000	-59.43	5.3500	-57.4263	6.0000	-55.3303
3.4100	-62.6568	4.0600	-50.7025	4.7100	-58.06	5.3600	-57.8146	6.0100	-55.1048
3.4200	-62.5611	4.0700	-49.6746	4.7200	-57.42	5.3700	-58.6007	6.0200	-55.9252
3.4300	-61.9871	4.0800	-48.1777	4.7300	-57.6253	5.3800	-59.4446	6.0300	-54.9473
3.4400	-63.1371	4.0900	-50.5241	4.7400	-58.7051	5.3900	-61.5281	6.0400	-53.7217
3.4500	-61.6534	4.1000	-53.3065	4.7500	-58.8071	5.4000	-60.5317	6.0500	-54.5093
3.4600	-62.2335	4.1100	-55.4577	4.7600	-59.3499	5.4100	-57.4719	6.0600	-55.5421
3.4700	-61.4441	4.1200	-55.5937	4.7700	-62.1739	5.4200	-54.8973	6.0700	-57.3465
3.4800	-62.7250	4.1300	-54.4315	4.7800	-60.5927	5.4300	-54.7115	6.0800	-57.6086
3.4900	-62.6261	4.1400	-48.8373	4.7900	-59.8443	5.4400	-54.8798	6.0900	-58.1489
3.5000	-63.3278	4.1500	-43.2499	4.8000	-59.8011	5.4500	-56.0495	6.1000	-57.7461
3.5100	-63.7814	4.1600	-39.9116	4.8100	-59.4515	5.4600	-55.1278	6.1100	-60.0540
3.5200	-63.9003	4.1700	-38.2065	4.8200	-58.0547	5.4700	-56.9577	6.1200	-59.3120
3.5300	-65.0819	4.1800	-37.0289	4.8300	-58.2465	5.4800	-58.1911	6.1300	-59.3034
3.5400	-64.4927	4.1900	-35.8112	4.8400	-58.5515	5.4900	-58.2992	6.1400	-60.7481
3.5500	-64.2012	4.2000	-33.7202	4.8500	-59.1154	5.5000	-58.8091	6.1500	-59.4209
3.5600	-64.6436	4.2100	-30.1846	4.8600	-59.9771	5.5100	-60.6955	6.1600	-56.3822
3.5700	-65.1103	4.2200	-24.5310	4.8700	-59.1467	5.5200	-60.5251	6.1700	-51.8681
3.5800	-65.1890	4.2300	-17.3131	4.8800	-59.1844	5.5300	-60.0077	6.1800	-50.1747
3.5900	-63.9240	4.2400	-25.6242	4.8900	-57.6743	5.5400	-58.5625	6.1900	-50.8100
3.6000	-63.6032	4.2500	-30.5112	4.9000	-54.9357	5.5500	-57.8179	6.2000	-51.3603
3.6100	-62.0416	4.2600	-34.1588	4.9100	-54.8057	5.5600	-57.2959	6.2100	-53.8127
3.6200	-62.9675	4.2700	-36.1872	4.9200	-56.2616	5.5700	-57.8035	6.2200	-51.7697
3.6300	-61.4709	4.2800	-37.9040	4.9300	-59.9099	5.5800	-58.9467	6.2300	-47.3580
3.6400	-62.7468	4.2900	-39.0491	4.9400	-60.7842	5.5900	-58.8756	6.2400	-52.5689

6.2500	-55.9047	6.9400	-34.1371	7.6300	-60.1244	8.3200	-60.0976	9.0100	-47.3447
6.2600	-55.6826	6.9500	-33.0973	7.6400	-62.3768	8.3300	-61.1533	9.0200	-46.0461
6.2700	-52.6893	6.9600	-40.8418	7.6500	-61.6224	8.3400	-60.8789	9.0300	-42.1932
6.2800	-54.0379	6.9700	-49.4043	7.6600	-62.3280	8.3500	-58.3057	9.0400	-40.6012
6.2900	-55.2642	6.9800	-51.8185	7.6700	-62.7347	8.3600	-57.8889	9.0500	-38.2066
6.3000	-58.3072	6.9900	-47.8667	7.6800	-61.4451	8.3700	-54.6091	9.0600	-35.2133
6.3100	-58.4096	7.0000	-44.4630	7.6900	-60.6607	8.3800	-52.0890	9.0700	-28.0282
6.3200	-57.8147	7.0100	-45.3247	7.7000	-60.9541	8.3900	-44.9765	9.0800	-36.5548
6.3300	-60.8039	7.0200	-52.6909	7.7100	-60.6765	8.4000	-47.5545	9.0900	-56.3391
6.3400	-61.6517	7.0300	-59.4441	7.7200	-60.4321	8.4100	-52.5917	9.1000	-53.0756
6.3500	-54.1443	7.0400	-60.3259	7.7300	-62.2763	8.4200	-54.7407	9.1100	-48.1423
6.3600	-50.2405	7.0500	-57.7529	7.7400	-63.0200	8.4300	-54.8887	9.1200	-45.8122
6.3700	-50.4332	7.0600	-56.8221	7.7500	-59.9925	8.4400	-54.2453	9.1300	-45.9203
6.3800	-54.9044	7.0700	-56.1241	7.7600	-60.7737	8.4500	-55.3415	9.1400	-43.2412
6.3900	-54.6311	7.0800	-57.6028	7.7700	-62.6091	8.4600	-56.8427	9.1500	-41.5156
6.4000	-49.9257	7.0900	-58.4378	7.7800	-62.1422	8.4700	-59.4545	9.1600	-39.3450
6.4100	-47.4502	7.1000	-58.1899	7.7900	-60.6818	8.4800	-59.6316	9.1700	-41.0097
6.4200	-51.7385	7.1100	-56.7109	7.8000	-59.2711	8.4900	-59.1019	9.1800	-41.2917
6.4300	-56.9549	7.1200	-56.7477	7.8100	-58.6135	8.5000	-56.3802	9.1900	-42.3908
6.4400	-57.7987	7.1300	-53.3675	7.8200	-58.6193	8.5100	-53.5521	9.2000	-42.7326
6.4500	-53.0709	7.1400	-48.3845	7.8300	-61.2597	8.5200	-52.3187	9.2100	-42.1687
6.4600	-49.1914	7.1500	-43.1223	7.8400	-61.7511	8.5300	-52.0256	9.2200	-43.5570
6.4700	-48.5819	7.1600	-37.1309	7.8500	-61.3746	8.5400	-52.7664	9.2300	-43.3732
6.4800	-53.1656	7.1700	-29.1973	7.8600	-61.4890	8.5500	-54.6743	9.2400	-42.9434
6.4900	-52.8193	7.1800	-39.1162	7.8700	-61.4585	8.5600	-56.1747	9.2500	-43.4583
6.5000	-46.6698	7.1900	-39.8623	7.8800	-61.3667	8.5700	-55.7227	9.2600	-43.8730
6.5100	-43.9543	7.2000	-34.0266	7.8900	-59.0740	8.5800	-54.5657	9.2700	-46.6872
6.5200	-46.4469	7.2100	-33.9864	7.9000	-59.4421	8.5900	-52.5827	9.2800	-47.0469
6.5300	-47.9643	7.2200	-40.3969	7.9100	-58.5150	8.6000	-52.1122	9.2900	-46.6948
6.5400	-35.1699	7.2300	-54.3450	7.9200	-57.3673	8.6100	-51.4157	9.3000	-47.6394
6.5500	-38.4423	7.2400	-57.4651	7.9300	-57.7228	8.6200	-52.7438	9.3100	-49.8521
6.5600	-47.8616	7.2500	-56.7067	7.9400	-58.5154	8.6300	-55.3024	9.3200	-52.5115
6.5700	-53.6026	7.2600	-57.2027	7.9500	-59.2875	8.6400	-58.3571	9.3300	-57.5923
6.5800	-56.4658	7.2700	-57.7013	7.9600	-58.3241	8.6500	-59.5600	9.3400	-46.0812
6.5900	-55.3561	7.2800	-59.3139	7.9700	-55.2181	8.6600	-60.5405	9.3500	-43.3958
6.6000	-50.6493	7.2900	-61.3233	7.9800	-54.6153	8.6700	-59.7262	9.3600	-44.1410
6.6100	-52.0969	7.3000	-64.2511	7.9900	-56.8719	8.6800	-57.0779	9.3700	-50.0390
6.6200	-53.6068	7.3100	-65.3965	8.0000	-60.9455	8.6900	-56.1707	9.3800	-57.0529
6.6300	-55.2571	7.3200	-63.7742	8.0100	-61.2225	8.7000	-56.4759	9.3900	-46.4782
6.6400	-49.4722	7.3300	-61.9523	8.0200	-58.2351	8.7100	-54.7001	9.4000	-46.2201
6.6500	-41.8193	7.3400	-59.7043	8.0300	-53.4823	8.7200	-57.9048	9.4100	-41.7197
6.6600	-38.7314	7.3500	-58.9539	8.0400	-52.3831	8.7300	-58.0432	9.4200	-37.0130
6.6700	-37.1329	7.3600	-58.8477	8.0500	-59.1447	8.7400	-58.0880	9.4300	-37.7278
6.6800	-33.3082	7.3700	-60.3379	8.0600	-58.7439	8.7500	-56.8773	9.4400	-40.2722
6.6900	-23.1563	7.3800	-32.7099	8.0700	-53.6678	8.7600	-54.9088	9.4500	-43.8217
6.7000	-27.7437	7.3900	-55.6047	8.0800	-51.2463	8.7700	-52.2129	9.4600	-49.1457
6.7100	-27.1968	7.4000	-51.2666	8.0900	-51.7806	8.7800	-52.2063	9.4700	-49.0223
6.7200	-28.8749	7.4100	-56.0495	8.1000	-56.4802	8.7900	-50.4923	9.4800	-46.9573
6.7300	-31.0476	7.4200	-56.2255	8.1100	-62.0163	8.8000	-52.8856	9.4900	-42.6567
6.7400	-30.2627	7.4300	-56.9995	8.1200	-62.6659	8.8100	-58.2498	9.5000	-41.2035
6.7500	-28.9966	7.4400	-59.1107	8.1300	-61.0829	8.8200	-56.9080	9.5100	-42.3913
6.7600	-28.3536	7.4500	-56.1996	8.1400	-60.7654	8.8300	-58.1172	9.5200	-42.7102
6.7700	-28.1750	7.4600	-48.8753	8.1500	-61.8634	8.8400	-58.2431	9.5300	-41.9858
6.7800	-42.9566	7.4700	-45.4269	8.1600	-61.4595	8.8500	-51.7569	9.5400	-45.7563
6.7900	-37.6266	7.4800	-46.6754	8.1700	-61.5180	8.8600	-53.0749	9.5500	-44.9058
6.8000	-40.9408	7.4900	-51.6301	8.1800	-62.1197	8.8700	-53.6424	9.5600	-45.2080
6.8100	-52.3909	7.5000	-55.3711	8.1900	-63.9996	8.8800	-51.2019	9.5700	-44.0333
6.8200	-59.0121	7.5100	-56.1153	8.2000	-64.1121	8.8900	-47.7534	9.5800	-45.5053
6.8300	-58.5735	7.5200	-54.2976	8.2100	-64.7537	8.9000	-47.4995	9.5900	-47.5582
6.8400	-60.2063	7.5300	-51.3398	8.2200	-64.1857	8.9100	-46.7070	9.6000	-49.7243
6.8500	-58.9260	7.5400	-52.2019	8.2300	-62.0497	8.9200	-45.8727	9.6100	-50.1935
6.8600	-60.2223	7.5500	-56.9905	8.2400	-58.7865	8.9300	-45.6596	9.6200	-50.0275
6.8700	-61.6333	7.5600	-61.3340	8.2500	-59.1812	8.9400	-39.8121	9.6300	-47.1768
6.8800	-54.9353	7.5700	-64.1588	8.2600	-61.5645	8.9500	-41.9128	9.6400	-45.2465
6.8900	-49.8983	7.5800	-64.0785	8.2700	-63.5152	8.9600	-53.3051	9.6500	-43.7028
6.9000	-47.8423	7.5900	-61.6809	8.2800	-62.4823	8.9700	-46.3899	9.6600	-44.3138
6.9100	-46.7201	7.6000	-61.0537	8.2900	-61.5877	8.9800	-44.4044	9.6700	-46.4602
6.9200	-47.4053	7.6100	-59.2188	8.3000	-60.0397	8.9900	-45.9819	9.6800	-46.9508
6.9300	-43.8209	7.6200	-57.5403	8.3100	-59.2167	9.0000	-46.7395	9.6900	-48.6107

9.7000	-47.6934	10.3900	-56.9811	11.0800	-26.9883	11.7700	-51.5533	12.4600	-42.4926
9.7100	-46.4241	10.4000	-59.7619	11.0900	-28.6765	11.7800	-52.1246	12.4700	-41.0743
9.7200	-44.2352	10.4100	-59.1315	11.1000	-43.0731	11.7900	-53.8596	12.4800	-43.2492
9.7300	-41.4953	10.4200	-59.1306	11.1100	-50.6714	11.8000	-54.1751	12.4900	-43.9545
9.7400	-40.7981	10.4300	-59.6731	11.1200	-56.5226	11.8100	-53.3987	12.5000	-46.3271
9.7500	-34.5086	10.4400	-53.6082	11.1300	-52.0439	11.8200	-52.4272	12.5100	-47.9055
9.7600	-36.2797	10.4500	-50.3834	11.1400	-48.5340	11.8300	-51.0636	12.5200	-48.4085
9.7700	-36.7927	10.4600	-50.2391	11.1500	-44.7662	11.8400	-50.2684	12.5300	-49.4941
9.7800	-36.9299	10.4700	-48.7070	11.1600	-44.3438	11.8500	-49.2203	12.5400	-50.1734
9.7900	-36.7030	10.4800	-46.2565	11.1700	-45.0890	11.8600	-47.7765	12.5500	-49.8471
9.8000	-35.7597	10.4900	-49.0680	11.1800	-49.9129	11.8700	-47.1371	12.5600	-48.4250
9.8100	-34.8561	10.5000	-49.9735	11.1900	-49.5739	11.8800	-46.9098	12.5700	-45.5315
9.8200	-34.9439	10.5100	-47.9673	11.2000	-48.3362	11.8900	-49.4631	12.5800	-44.4581
9.8300	-34.9400	10.5200	-47.4923	11.2100	-48.0039	11.9000	-50.7988	12.5900	-41.6555
9.8400	-35.6971	10.5300	-50.9996	11.2200	-47.4168	11.9100	-48.7827	12.6000	-44.3029
9.8500	-33.1648	10.5400	-58.6483	11.2300	-46.1211	11.9200	-47.8573	12.6100	-48.3580
9.8600	-31.0256	10.5500	-54.5120	11.2400	-51.1665	11.9300	-51.0723	12.6200	-49.0157
9.8700	-28.9951	10.5600	-49.8818	11.2500	-54.3897	11.9400	-51.8247	12.6300	-51.2639
9.8800	-25.4840	10.5700	-46.9258	11.2600	-58.2431	11.9500	-52.3241	12.6400	-51.9072
9.8900	-22.8061	10.5800	-43.7840	11.2700	-54.9008	11.9600	-51.0591	12.6500	-50.1933
9.9000	-21.1820	10.5900	-40.1748	11.2800	-40.0045	11.9700	-51.1363	12.6600	-49.2917
9.9100	-19.3936	10.6000	-38.8281	11.2900	-41.6599	11.9800	-51.1284	12.6700	-48.3909
9.9200	-14.6969	10.6100	-39.1155	11.3000	-41.7341	11.9900	-51.8453	12.6800	-47.5125
9.9300	-7.6130	10.6200	-41.6027	11.3100	-42.1954	12.0000	-51.7839	12.6900	-44.7179
9.9400	-7.6815	10.6300	-47.5313	11.3200	-42.4137	12.0100	-51.0447	12.7000	-41.1488
9.9500	-15.1784	10.6400	-54.3865	11.3300	-43.8946	12.0200	-52.1811	12.7100	-47.5550
9.9600	-27.3213	10.6500	-45.0991	11.3400	-43.8383	12.0300	-50.4702	12.7200	-47.0743
9.9700	-31.8663	10.6600	-40.0280	11.3500	-44.3039	12.0400	-50.3741	12.7300	-45.8340
9.9800	-26.9672	10.6700	-40.7453	11.3600	-43.9461	12.0500	-48.1704	12.7400	-47.3982
9.9900	-24.5222	10.6800	-44.6166	11.3700	-43.2984	12.0600	-50.1417	12.7500	-27.6079
10.0000	-26.6059	10.6900	-49.2022	11.3800	-42.9374	12.0700	-50.6865	12.7600	-49.1953
10.0100	-31.0814	10.7000	-51.5793	11.3900	-44.1001	12.0800	-50.9110	12.7700	-50.5171
10.0200	-36.2366	10.7100	-43.7575	11.4000	-45.8672	12.0900	-50.4303	12.7800	-53.1084
10.0300	-43.1034	10.7200	-40.6608	11.4100	-46.7912	12.1000	-49.4999	12.7900	-53.5998
10.0400	-48.1380	10.7300	-39.6787	11.4200	-48.6618	12.1100	-50.1026	12.8000	-53.0383
10.0500	-53.0234	10.7400	-35.6820	11.4300	-49.4012	12.1200	-49.5421	12.8100	-50.7791
10.0600	-55.1759	10.7500	-39.1574	11.4400	-47.1693	12.1300	-50.1706	12.8200	-49.6963
10.0700	-57.5420	10.7600	-43.4058	11.4500	-47.3793	12.1400	-49.9030	12.8300	-49.2341
10.0800	-57.7303	10.7700	-41.0744	11.4600	-48.3630	12.1500	-48.5475	12.8400	-48.9043
10.0900	-56.7517	10.7800	-37.7083	11.4700	-49.7680	12.1600	-49.3624	12.8500	-49.8759
10.1000	-58.4291	10.7900	-26.3619	11.4800	-51.5953	12.1700	-49.9605	12.8600	-51.5279
10.1100	-58.8568	10.8000	-53.4030	11.4900	-52.4164	12.1800	-46.5009	12.8700	-53.5391
10.1200	-57.4348	10.8100	-48.4315	11.5000	-52.9692	12.1900	-49.3977	12.8800	-53.5405
10.1300	-58.2538	10.8200	-46.4281	11.5100	-51.4325	12.2000	-48.5021	12.8900	-54.0048
10.1400	-59.7609	10.8300	-41.7034	11.5200	-49.5540	12.2100	-47.7495	12.9000	-54.7792
10.1500	-62.1696	10.8400	-36.2042	11.5300	-48.7094	12.2200	-48.1540	12.9100	-56.2902
10.1600	-62.6372	10.8500	-34.2753	11.5400	-46.1292	12.2300	-50.3672	12.9200	-55.3412
10.1700	-64.0190	10.8600	-36.0169	11.5500	-43.6870	12.2400	-51.2397	12.9300	-53.5921
10.1800	-58.0710	10.8700	-38.1606	11.5600	-44.9530	12.2500	-48.8787	12.9400	-53.7350
10.1900	-51.1777	10.8800	-44.0257	11.5700	-44.8295	12.2600	-52.4053	12.9500	-53.8363
10.2000	-46.1715	10.8900	-51.4053	11.5800	-47.1474	12.2700	-52.4674	12.9600	-54.3938
10.2100	-41.0918	10.9000	-53.9099	11.5900	-49.3874	12.2800	-52.2277	12.9700	-53.8011
10.2200	-41.2329	10.9100	-51.7638	11.6000	-48.9982	12.2900	-50.6112	12.9800	-52.9387
10.2300	-41.7540	10.9200	-49.4405	11.6100	-47.7908	12.3000	-51.2501	12.9900	-52.7270
10.2400	-42.9406	10.9300	-46.0518	11.6200	-47.1917	12.3100	-48.5566		
10.2500	-43.7189	10.9400	-45.5975	11.6300	-44.7465	12.3200	-48.1439		
10.2600	-45.5526	10.9500	-46.5921	11.6400	-43.1624	12.3300	-49.5422		
10.2700	-47.1891	10.9600	-45.7371	11.6500	-47.5921	12.3400	-50.6499		
10.2800	-53.1241	10.9700	-40.0148	11.6600	-47.5210	12.3500	-51.5524		
10.2900	-58.9630	10.9800	-36.4072	11.6700	-47.3855	12.3600	-49.6215		
10.3000	-59.9647	10.9900	-36.5300	11.6800	-48.2371	12.3700	-49.6341		
10.3100	-62.7063	11.0000	-38.7492	11.6900	-48.5794	12.3800	-49.6530		
10.3200	-62.3641	11.0100	-39.6282	11.7000	-50.9565	12.3900	-50.7417		
10.3300	-62.8601	11.0200	-41.1724	11.7100	-50.6793	12.4000	-50.2308		
10.3400	-59.8691	11.0300	-40.3000	11.7200	-50.7115	12.4100	-49.5404		
10.3500	-54.2695	11.0400	-38.5622	11.7300	-50.5597	12.4200	-52.0060		
10.3600	-48.4842	11.0500	-39.7833	11.7400	-49.1248	12.4300	-51.0229		
10.3700	-51.1622	11.0600	-41.8808	11.7500	-48.3895	12.4400	-49.2839		
10.3800	-54.4804	11.0700	-43.0372	11.7600	-51.6278	12.4500	-47.3175		

CYLINDER #3

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
3.0000	-51.0399	3.6500	-40.4720	4.3000	-26.3297	4.9500	-34.9424	5.6000	-44.7131
3.0100	-52.4329	3.6600	-42.5732	4.3100	-27.3895	4.9600	-26.0426	5.6100	-44.1581
3.0200	-53.3002	3.6700	-42.2014	4.3200	-27.0353	4.9700	-15.0385	5.6200	-43.3855
3.0300	-48.1093	3.6800	-41.5732	4.3300	-25.4925	4.9800	-15.6745	5.6300	-46.2990
3.0400	-47.6478	3.6900	-39.4592	4.3400	-25.0160	4.9900	-21.1111	5.6400	-47.1243
3.0500	-51.0296	3.7000	-36.7084	4.3500	-24.9723	5.0000	-23.6469	5.6500	-49.8537
3.0600	-48.0632	3.7100	-34.2707	4.3600	-26.4143	5.0100	-25.9763	5.6600	-50.7141
3.0700	-49.3479	3.7200	-32.7442	4.3700	-27.6262	5.0200	-28.1464	5.6700	-50.2845
3.0800	-46.4775	3.7300	-31.7790	4.3800	-22.9449	5.0300	-30.8472	5.6800	-49.5183
3.0900	-41.9513	3.7400	-32.9825	4.3900	-25.7605	5.0400	-34.8251	5.6900	-49.7899
3.1000	-40.6665	3.7500	-33.6846	4.4000	-26.8832	5.0500	-40.5246	5.7000	-49.0629
3.1100	-44.1266	3.7600	-35.7517	4.4100	-27.5534	5.0600	-46.1562	5.7100	-47.0083
3.1200	-55.7409	3.7700	-36.1743	4.4200	-27.5620	5.0700	-39.0786	5.7200	-43.1670
3.1300	-60.2431	3.7800	-36.5453	4.4300	-28.3723	5.0800	-26.3482	5.7300	-39.6556
3.1400	-55.7763	3.7900	-36.2901	4.4400	-28.3574	5.0900	-20.8315	5.7400	-39.7309
3.1500	-52.7095	3.8000	-37.0500	4.4500	-28.1880	5.1000	-16.2301	5.7500	-40.3197
3.1600	-46.2802	3.8100	-36.9338	4.4600	-28.5525	5.1100	-12.5739	5.7600	-42.1681
3.1700	-41.8824	3.8200	-36.7157	4.4700	-28.7478	5.1200	-14.2076	5.7700	-43.8802
3.1800	-41.4636	3.8300	-36.7562	4.4800	-28.6864	5.1300	-17.3581	5.7800	-43.8127
3.1900	-43.0648	3.8400	-37.2681	4.4900	-29.6790	5.1400	-20.2099	5.7900	-42.2972
3.2000	-46.7249	3.8500	-37.7489	4.5000	-31.1083	5.1500	-22.6373	5.8000	-41.3546
3.2100	-50.8771	3.8600	-37.7401	4.5100	-31.6214	5.1600	-24.5233	5.8100	-40.5155
3.2200	-58.5559	3.8700	-37.5872	4.5200	-32.4702	5.1700	-26.1255	5.8200	-39.5907
3.2300	-61.1739	3.8800	-37.4237	4.5300	-31.8698	5.1800	-27.3616	5.8300	-38.7080
3.2400	-60.4590	3.8900	-38.3648	4.5400	-32.5795	5.1900	-28.6523	5.8400	-37.9205
3.2500	-57.7911	3.9000	-38.5507	4.5500	-34.5998	5.2000	-29.2980	5.8500	-38.3048
3.2600	-54.7301	3.9100	-36.0189	4.5600	-36.8813	5.2100	-30.5833	5.8600	-38.5302
3.2700	-46.6277	3.9200	-35.2744	4.5700	-37.0230	5.2200	-31.6444	5.8700	-38.6603
3.2800	-42.5706	3.9300	-33.8151	4.5800	-35.8510	5.2300	-33.2512	5.8800	-38.6497
3.2900	-41.7370	3.9400	-33.0627	4.5900	-35.1306	5.2400	-36.2897	5.8900	-39.7666
3.3000	-41.6651	3.9500	-31.5081	4.6000	-34.3952	5.2500	-33.4942	5.9000	-40.5026
3.3100	-42.8166	3.9600	-30.7417	4.6100	-34.4075	5.2600	-33.9167	5.9100	-44.1532
3.3200	-44.5251	3.9700	-30.2722	4.6200	-34.5938	5.2700	-35.1794	5.9200	-47.9769
3.3300	-46.2231	3.9800	-30.4699	4.6300	-34.5908	5.2800	-35.3431	5.9300	-46.6097
3.3400	-46.7627	3.9900	-31.3071	4.6400	-34.3874	5.2900	-34.9972	5.9400	-48.4555
3.3500	-47.9981	4.0000	-32.8598	4.6500	-34.3827	5.3000	-35.0107	5.9500	-51.9734
3.3600	-49.6951	4.0100	-34.6621	4.6600	-34.6562	5.3100	-35.3885	5.9600	-51.5564
3.3700	-51.3640	4.0200	-35.4426	4.6700	-34.6846	5.3200	-35.9626	5.9700	-47.5679
3.3800	-52.7427	4.0300	-34.9542	4.6800	-33.8451	5.3300	-37.2041	5.9800	-42.4595
3.3900	-53.8946	4.0400	-34.2210	4.6900	-34.1175	5.3400	-38.9332	5.9900	-42.0593
3.4000	-53.5831	4.0500	-31.5350	4.7000	-33.8422	5.3500	-41.4225	6.0000	-43.0336
3.4100	-56.6037	4.0600	-28.7007	4.7100	-33.9313	5.3600	-43.3511	6.0100	-44.3207
3.4200	-54.5381	4.0700	-26.2686	4.7200	-33.0664	5.3700	-43.2577	6.0200	-48.3642
3.4300	-51.2212	4.0800	-24.1437	4.7300	-32.3041	5.3800	-41.4376	6.0300	-53.7310
3.4400	-47.4353	4.0900	-23.2417	4.7400	-32.1463	5.3900	-41.7339	6.0400	-50.4429
3.4500	-42.4369	4.1000	-23.3264	4.7500	-32.3972	5.4000	-42.6175	6.0500	-45.8788
3.4600	-40.6151	4.1100	-23.8788	4.7600	-32.1094	5.4100	-47.1565	6.0600	-40.5467
3.4700	-40.0846	4.1200	-24.0074	4.7700	-32.1094	5.4200	-50.7189	6.0700	-41.2356
3.4800	-40.1125	4.1300	-23.7594	4.7800	-32.6188	5.4300	-52.7474	6.0800	-43.4634
3.4900	-40.5387	4.1400	-22.7197	4.7900	-32.9136	5.4400	-52.1627	6.0900	-44.1769
3.5000	-40.5399	4.1500	-21.1927	4.8000	-33.6250	5.4500	-49.8660	6.1000	-42.1004
3.5100	-40.6701	4.1600	-19.2100	4.8100	-33.9306	5.4600	-45.7749	6.1100	-39.8793
3.5200	-40.4908	4.1700	-16.7452	4.8200	-34.6448	5.4700	-47.5469	6.1200	-39.8180
3.5300	-40.4661	4.1800	-14.0330	4.8300	-35.0921	5.4800	-48.0610	6.1300	-40.4817
3.5400	-40.2862	4.1900	-10.9438	4.8400	-34.9124	5.4900	-48.1626	6.1400	-46.2084
3.5500	-40.6650	4.2000	-6.7872	4.8500	-34.8557	5.5000	-46.8903	6.1500	-52.5699
3.5600	-41.5043	4.2100	0.6492	4.8600	-34.1781	5.5100	-46.4325	6.1600	-53.4403
3.5700	-43.1402	4.2200	-1.0112	4.8700	-35.5206	5.5200	-45.3714	6.1700	-41.8203
3.5800	-44.9905	4.2300	-7.9845	4.8800	-35.1668	5.5300	-47.4196	6.1800	-31.6991
3.5900	-47.6847	4.2400	-12.1845	4.8900	-33.6204	5.5400	-51.3642	6.1900	-36.1532
3.6000	-48.6445	4.2500	-14.6990	4.9000	-30.3434	5.5500	-49.5936	6.2000	-45.6914
3.6100	-46.8622	4.2600	-17.5750	4.9100	-29.1224	5.5600	-49.6646	6.2100	-52.2797
3.6200	-43.0316	4.2700	-19.8189	4.9200	-30.1366	5.5700	-46.1598	6.2200	-47.0807
3.6300	-39.9992	4.2800	-21.9177	4.9300	-33.4049	5.5800	-45.2985	6.2300	-36.4164
3.6400	-39.6562	4.2900	-24.1693	4.9400	-37.2841	5.5900	-45.0125	6.2400	-35.2504

6.2500	-36.1559	6.9400	-21.7927	7.6300	-41.5647	8.3200	-36.2986	9.0100	-10.4693
6.2600	-39.8437	6.9500	-23.6928	7.6400	-42.2311	8.3300	-34.7989	9.0200	-4.2401
6.2700	-40.9128	6.9600	-29.5085	7.6500	-46.1408	8.3400	-34.1829	9.0300	-6.1115
6.2800	-40.4588	6.9700	-33.0824	7.6600	-48.3749	8.3500	-33.2681	9.0400	-18.6637
6.2900	-35.9256	6.9800	-32.7350	7.6700	-48.9944	8.3600	-32.0223	9.0500	-28.6055
6.3000	-36.1827	6.9900	-30.6365	7.6800	-48.8587	8.3700	-28.9515	9.0600	-36.2358
6.3100	-37.9547	7.0000	-27.7626	7.6900	-49.0122	8.3800	-25.3785	9.0700	-26.4838
6.3200	-42.2819	7.0100	-26.9791	7.7000	-46.4813	8.3900	-16.5293	9.0800	-22.5424
6.3300	-45.6263	7.0200	-27.6759	7.7100	-42.8645	8.4000	-17.3553	9.0900	-21.1937
6.3400	-44.4931	7.0300	-28.1883	7.7200	-41.2512	8.4100	-21.4672	9.1000	-20.2348
6.3500	-41.9798	7.0400	-28.2492	7.7300	-41.3268	8.4200	-24.1653	9.1100	-18.7067
6.3600	-42.4717	7.0500	-28.2536	7.7400	-42.0129	8.4300	-26.0183	9.1200	-17.6358
6.3700	-46.0601	7.0600	-28.0981	7.7500	-41.7803	8.4400	-26.8857	9.1300	-19.0161
6.3800	-48.9860	7.0700	-28.9719	7.7600	-41.8968	8.4500	-27.4252	9.1400	-19.8086
6.3900	-42.4525	7.0800	-30.8997	7.7700	-40.8476	8.4600	-27.1114	9.1500	-20.2643
6.4000	-34.6625	7.0900	-33.9207	7.7800	-38.9273	8.4700	-27.2761	9.1600	-18.4248
6.4100	-31.6856	7.1000	-34.6602	7.7900	-37.8629	8.4800	-26.9128	9.1700	-18.2965
6.4200	-32.4388	7.1100	-31.1939	7.8000	-36.4470	8.4900	-27.1520	9.1800	-19.3884
6.4300	-33.8186	7.1200	-27.4300	7.8100	-36.2763	8.5000	-27.6314	9.1900	-20.9665
6.4400	-33.4991	7.1300	-23.3275	7.8200	-36.5280	8.5100	-27.5793	9.2000	-21.9429
6.4500	-33.1775	7.1400	-20.2784	7.8300	-38.1917	8.5200	-27.4371	9.2100	-22.39[illegible]
6.4600	-35.2759	7.1500	-17.2411	7.8400	-41.1788	8.5300	-27.0719	9.2200	-22.02[illegible]
6.4700	-38.8280	7.1600	-11.0186	7.8500	-40.3723	8.5400	-27.3601	9.2300	-21.626[illegible]
6.4800	-45.9924	7.1700	1.2844	7.8600	-40.0581	8.5500	-27.8481	9.2400	-20.7704
6.4900	-50.6427	7.1800	-4.8081	7.8700	-38.8589	8.5600	-28.2806	9.2500	-20.5659
6.5000	-51.6147	7.1900	-9.1896	7.8800	-37.5331	8.5700	-28.7667	9.2600	-19.9296
6.5100	-50.9653	7.2000	-11.9911	7.8900	-36.2547	8.5800	-28.7676	9.2700	-20.7670
6.5200	-41.3553	7.2100	-13.9861	7.9000	-36.5714	8.5900	-28.9004	9.2800	-21.4138
6.5300	-28.4774	7.2200	-15.3657	7.9100	-35.3847	8.6000	-28.8078	9.2900	-22.7323
6.5400	-16.8687	7.2300	-18.6850	7.9200	-35.3107	8.6100	-28.3720	9.3000	-23.0375
6.5500	-22.2236	7.2400	-22.3194	7.9300	-37.1005	8.6200	-27.7101	9.3100	-23.5376
6.5600	-28.9459	7.2500	-25.6330	7.9400	-35.3796	8.6300	-28.1700	9.3200	-23.2483
6.5700	-32.1730	7.2600	-27.9289	7.9500	-34.5437	8.6400	-27.1286	9.3300	-23.0279
6.5800	-34.3219	7.2700	-29.1398	7.9600	-33.7987	8.6500	-26.9609	9.3400	-23.2968
6.5900	-36.2906	7.2800	-29.8424	7.9700	-33.1601	8.6600	-27.7450	9.3500	-19.5174
6.6000	-38.6940	7.2900	-30.3765	7.9800	-33.7543	8.6700	-28.5028	9.3600	-23.0207
6.6100	-42.1811	7.3000	-32.2322	7.9900	-33.2467	8.6800	-29.2562	9.3700	-23.8760
6.6200	-47.3082	7.3100	-35.6341	8.0000	-33.9591	8.6900	-29.2012	9.3800	-23.4968
6.6300	-53.1938	7.3200	-35.2857	8.0100	-33.3428	8.7000	-29.0752	9.3900	-22.4721
6.6400	-51.5073	7.3300	-30.6131	8.0200	-32.4546	8.7100	-27.9050	9.4000	-22.4080
6.6500	-39.8371	7.3400	-26.6024	8.0300	-33.3561	8.7200	-28.4324	9.4100	-21.6784
6.6600	-33.5683	7.3500	-41.1372	8.0400	-34.0847	8.7300	-27.5416	9.4200	-20.6357
6.6700	-28.5743	7.3600	-37.3446	8.0500	-33.9230	8.7400	-28.2550	9.4300	-21.5097
6.6800	-19.8306	7.3700	-51.3811	8.0600	-33.4707	8.7500	-28.2268	9.4400	-22.9175
6.6900	-18.4493	7.3800	-44.1521	8.0700	-33.3426	8.7600	-28.7272	9.4500	-24.1211
6.7000	-27.4838	7.3900	-43.9156	8.0800	-32.9865	8.7700	-28.3706	9.4600	-23.7002
6.7100	-30.3587	7.4000	-43.4030	8.0900	-33.8772	8.7800	-28.1547	9.4700	-23.1193
6.7200	-42.7164	7.4100	-41.7655	8.1000	-34.3331	8.7900	-27.0632	9.4800	-23.6524
6.7300	-21.6493	7.4200	-41.8113	8.1100	-34.8564	8.8000	-27.5759	9.4900	-20.6880
6.7400	-26.2974	7.4300	-44.5896	8.1200	-35.7242	8.8100	-27.1947	9.5000	-20.3877
6.7500	-36.8676	7.4400	-52.8091	8.1300	-34.9933	8.8200	-25.8647	9.5100	-20.2614
6.7600	-53.2074	7.4500	-55.0021	8.1400	-34.7540	8.8300	-26.2010	9.5200	-21.3020
6.7700	-34.4637	7.4600	-50.6989	8.1500	-34.5218	8.8400	-26.3862	9.5300	-21.6569
6.7800	-31.5391	7.4700	-45.9812	8.1600	-34.3523	8.8500	-26.0976	9.5400	-21.8405
6.7900	-31.7806	7.4800	-47.7631	8.1700	-35.0673	8.8600	-25.3174	9.5500	-21.2134
6.8000	-33.1463	7.4900	-51.5832	8.1800	-36.0367	8.8700	-24.5405	9.5600	-20.1344
6.8100	-39.5012	7.5000	-55.7985	8.1900	-35.7656	8.8800	-22.4375	9.5700	-19.0575
6.8200	-36.2219	7.5100	-55.0879	8.2000	-36.5789	8.8900	-20.7088	9.5800	-18.3676
6.8300	-32.6600	7.5200	-51.2710	8.2100	-35.6224	8.9000	-20.2351	9.5900	-18.4760
6.8400	-31.3310	7.5300	-43.2138	8.2200	-35.8353	8.9100	-20.8049	9.6000	-20.3538
6.8500	-32.4093	7.5400	-37.6091	8.2300	-35.3567	8.9200	-21.5461	9.6100	-19.7123
6.8600	-34.3073	7.5500	-37.4555	8.2400	-34.7840	8.9300	-21.8119	9.6200	-20.0304
6.8700	-34.6477	7.5600	-40.7106	8.2500	-35.1814	8.9400	-22.1523	9.6300	-20.0358
6.8800	-33.4566	7.5700	-44.7406	8.2600	-35.9543	8.9500	-20.7632	9.6400	-19.4900
6.8900	-32.2641	7.5800	-46.5578	8.2700	-37.4235	8.9600	-18.2384	9.6500	-17.8277
6.9000	-30.3841	7.5900	-47.1375	8.2800	-37.1766	8.9700	-16.2961	9.6600	-16.8587
6.9100	-28.3504	7.6000	-46.4189	8.2900	-36.9237	8.9800	-15.3841	9.6700	-16.0719
6.9200	-26.5256	7.6100	-47.3476	8.3000	-37.1395	8.9900	-13.6918	9.6800	-15.2447
6.9300	-23.7946	7.6200	-46.8177	8.3100	-37.3167	9.0000	-13.0805	9.6900	-15.9408

9.7000	-16.0549	10.3900	-57.8004	11.0800	-15.9714	11.7700	-22.2280	12.4600	-16.1983
9.7100	-15.2906	10.4000	-58.3838	11.0900	-15.7969	11.7800	-21.9482	12.4700	-13.8002
9.7200	-13.6704	10.4100	-58.0983	11.1000	-17.6392	11.7900	-20.5513	12.4800	-14.4829
9.7300	-11.4037	10.4200	-42.6969	11.1100	-18.3087	11.8000	-19.9372	12.4900	-15.2292
9.7400	-13.6393	10.4300	-36.5105	11.1200	-19.2578	11.8100	-20.3234	12.5000	-16.1419
9.7500	-12.5813	10.4400	-37.2333	11.1300	-18.9516	11.8200	-21.6985	12.5100	-19.3862
9.7600	-11.0175	10.4500	-38.4456	11.1400	-18.6831	11.8300	-22.9070	12.5200	-20.7038
9.7700	-11.3344	10.4600	-38.4693	11.1500	-16.9964	11.8400	-23.0963	12.5300	-19.4971
9.7800	-11.3574	10.4700	-38.7038	11.1600	-15.6853	11.8500	-22.6630	12.5400	-17.6585
9.7900	-10.6961	10.4800	-38.2669	11.1700	-16.0790	11.8600	-21.8324	12.5500	-17.3176
9.8000	-10.4297	10.4900	-37.0705	11.1800	-16.4407	11.8700	-20.0250	12.5600	-13.6717
9.8100	-10.2500	10.5000	-33.9714	11.1900	-17.1563	11.8800	-19.3772	12.5700	-18.0600
9.8200	-10.2115	10.5100	-31.3894	11.2000	-17.1365	11.8900	-19.0080	12.5800	-18.1367
9.8300	-10.0906	10.5200	-30.1164	11.2100	-13.8046	11.9000	-19.1927	12.5900	-14.1413
9.8400	-9.3504	10.5300	-29.2038	11.2200	-18.3276	11.9100	-20.0852	12.6000	-14.3088
9.8500	-7.7126	10.5400	-28.8694	11.2300	-18.6121	11.9200	-20.2293	12.6100	-14.5470
9.8600	-4.0870	10.5500	-28.0481	11.2400	-18.9250	11.9300	-20.4294	12.6200	-13.0524
9.8700	-2.6127	10.5600	-27.4417	11.2500	-19.1606	11.9400	-19.8672	12.6300	-9.9781
9.8800	-1.6195	10.5700	-26.4712	11.2600	-18.1603	11.9500	-18.9447	12.6400	-16.4610
9.8900	-0.9137	10.5800	-25.6167	11.2700	-18.1552	11.9600	-18.6193	12.6500	-20.5445
9.9000	-0.0976	10.5900	-25.6112	11.2800	-18.3604	11.9700	-19.7728	12.6600	-24.2771
9.9100	1.5183	10.6000	-25.5751	11.2900	-18.8550	11.9800	-20.6869	12.6700	-24.1534
9.9200	6.1226	10.6100	-26.0335	11.3000	-19.1591	11.9900	-21.9492	12.6800	-24.5217
9.9300	12.5521	10.6200	-25.2724	11.3100	-20.9877	12.0000	-22.2042	12.6900	-28.0522
9.9400	10.9616	10.6300	-22.9912	11.3200	-22.1823	12.0100	-22.2062	12.7000	-30.1252
9.9500	1.8944	10.6400	-20.0561	11.3300	-22.5729	12.0200	-21.0833	12.7100	-31.0289
9.9600	-6.8399	10.6500	-17.5814	11.3400	-23.3502	12.0300	-19.1030	12.7200	-35.7945
9.9700	-12.6892	10.6600	-15.9612	11.3500	-22.0432	12.0400	-17.5540	12.7300	-33.6671
9.9800	-15.4264	10.6700	-15.3619	11.3600	-21.2728	12.0500	-18.6337	12.7400	-29.7178
9.9900	-15.3898	10.6800	-16.0920	11.3700	-20.7744	12.0600	-19.5481	12.7500	-25.7273
10.0000	-17.7447	10.6900	-16.4479	11.3800	-20.8796	12.0700	-21.5855	12.7600	-25.1799
10.0100	-22.7655	10.7000	-15.9517	11.3900	-21.3383	12.0800	-22.4145	12.7700	-26.6215
10.0200	-29.1178	10.7100	-14.5334	11.4000	-21.8943	12.0900	-24.2607	12.7800	-28.1619
10.0300	-40.5239	10.7200	-11.7674	11.4100	-22.2674	12.1000	-24.2643	12.7900	-32.3461
10.0400	-39.0886	10.7300	-7.2803	11.4200	-22.0274	12.1100	-24.8772	12.8000	-35.0106
10.0500	-33.6674	10.7400	1.2466	11.4300	-22.0833	12.1200	-20.8322	12.8100	-42.4856
10.0600	-31.8204	10.7500	-7.7518	11.4400	-22.0059	12.1300	-16.2123	12.8200	-41.0239
10.0700	-30.2603	10.7600	-32.6997	11.4500	-21.7088	12.1400	-18.2004	12.8300	-36.9556
10.0800	-29.1458	10.7700	-27.8613	11.4600	-22.6614	12.1500	-18.0512	12.8400	-34.0875
10.0900	-29.0814	10.7800	-24.5249	11.4700	-24.2604	12.1600	-18.2918	12.8500	-26.1009
10.1000	-29.7376	10.7900	-20.3689	11.4800	-26.7044	12.1700	-19.5036	12.8600	-28.7291
10.1100	-30.3473	10.8000	-17.0148	11.4900	-25.3743	12.1800	-22.7438	12.8700	-28.6774
10.1200	-30.0433	10.8100	-12.2829	11.5000	-26.6387	12.1900	-19.3069	12.8800	-30.5983
10.1300	-30.7284	10.8200	-8.9448	11.5100	-23.3335	12.2000	-17.8553	12.8900	-30.4974
10.1400	-32.1513	10.8300	-7.7035	11.5200	-22.6633	12.2100	-19.8478	12.9000	-30.2837
10.1500	-32.7461	10.8400	-8.5112	11.5300	-20.8926	12.2200	-28.4388	12.9100	-28.9762
10.1600	-33.1983	10.8500	-10.9066	11.5400	-20.2075	12.2300	-30.5617	12.9200	-29.8463
10.1700	-33.2335	10.8600	-12.7094	11.5500	-19.8532	12.2400	-24.7523	12.9300	-30.7075
10.1800	-33.8790	10.8700	-12.3945	11.5600	-20.1523	12.2500	-24.8921	12.9400	-32.3532
10.1900	-35.2877	10.8800	-12.8602	11.5700	-20.6845	12.2600	-25.9466	12.9500	-33.1955
10.2000	-38.8542	10.8900	-12.4556	11.5800	-21.2599	12.2700	-25.9440	12.9600	-35.8674
10.2100	-36.7552	10.9000	-12.6004	11.5900	-24.0592	12.2800	-23.8234	12.9700	-36.9542
10.2200	-35.8659	10.9100	-12.4667	11.6000	-22.1431	12.2900	-21.7999	12.9800	-30.7317
10.2300	-34.4566	10.9200	-13.6911	11.6100	-20.6274	12.3000	-19.4763	12.9900	-27.7202
10.2400	-33.4997	10.9300	-15.4972	11.6200	-18.1655	12.3100	-19.0493		
10.2500	-33.5101	10.9400	-16.0341	11.6300	-17.0808	12.3200	-21.3307		
10.2600	-35.6580	10.9500	-15.6795	11.6400	-17.6553	12.3300	-20.3070		
10.2700	-39.6508	10.9600	-15.2915	11.6500	-18.5729	12.3400	-19.2939		
10.2800	-41.1703	10.9700	-14.7564	11.6600	-19.8025	12.3500	-20.5219		
10.2900	-40.3316	10.9800	-14.4669	11.6700	-20.1214	12.3600	-20.6159		
10.3000	-41.4268	10.9900	-15.3017	11.6800	-20.9774	12.3700	-22.5585		
10.3100	-37.4944	11.0000	-15.8226	11.6900	-19.9399	12.3800	-19.0507		
10.3200	-36.1549	11.0100	-17.0621	11.7000	-19.6254	12.3900	-18.9171		
10.3300	-35.4133	11.0200	-18.3987	11.7100	-19.5084	12.4000	-15.0676		
10.3400	-37.0693	11.0300	-18.1434	11.7200	-20.1611	12.4100	-9.9052		
10.3500	-41.1407	11.0400	-17.2138	11.7300	-21.3283	12.4200	-9.9710		
10.3600	-49.8179	11.0500	-15.9924	11.7400	-22.1409	12.4300	-8.8599		
10.3700	-57.8466	11.0600	-13.3608	11.7500	-21.8441	12.4400	-9.8228		
10.3800	-59.6570	11.0700	-15.4483	11.7600	-22.1239	12.4500	-15.5464		

CYLINDER #4
(Normalized with Pre-Test Calibration)

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
3.0000	-43.5607	3.6400	-30.9557	4.2800	-12.5041	4.9200	-23.3256	5.5600	-38.8174
3.0100	-45.5520	3.6500	-30.3394	4.2900	-13.7063	4.9300	-26.9794	5.5700	-35.9682
3.0200	-47.1325	3.6600	-30.1672	4.3000	-14.5404	4.9400	-32.8441	5.5800	-35.8216
3.0300	-47.7471	3.6700	-30.0933	4.3100	-15.1198	4.9500	-28.5112	5.5900	-35.7582
3.0400	-47.8280	3.6800	-29.9140	4.3200	-15.3618	4.9600	-17.6684	5.6000	-34.8243
3.0500	-48.5557	3.6900	-29.6617	4.3300	-15.3855	4.9700	-9.0769	5.6100	-34.6900
3.0600	-45.7830	3.7000	-29.2696	4.3400	-15.9771	4.9800	-11.5791	5.6200	-34.4768
3.0700	-47.3799	3.7100	-28.7588	4.3500	-16.2107	4.9900	-14.8159	5.6300	-35.6510
3.0800	-43.1063	3.7200	-28.4232	4.3600	-16.8474	5.0000	-17.6625	5.6400	-37.0425
3.0900	-39.0893	3.7300	-28.1134	4.3700	-17.5968	5.0100	-20.0406	5.6500	-40.5377
3.1000	-38.2505	3.7400	-28.2969	4.3800	-18.2086	5.0200	-21.8644	5.6600	-44.4385
3.1100	-39.4033	3.7500	-28.8832	4.3900	-19.3951	5.0300	-23.8301	5.6700	-40.9979
3.1200	-39.8224	3.7600	-29.3565	4.4000	-19.8513	5.0400	-25.1615	5.6800	-40.0208
3.1300	-39.9545	3.7700	-29.4341	4.4100	-20.0928	5.0500	-25.7954	5.6900	-39.1761
3.1400	-40.2104	3.7800	-29.2464	4.4200	-20.2322	5.0600	-25.9656	5.7000	-38.1651
3.1500	-40.3585	3.7900	-28.8918	4.4300	-19.7058	5.0700	-21.5084	5.7100	-38.2592
3.1600	-39.1174	3.8000	-28.5786	4.4400	-20.3602	5.0800	-13.1789	5.7200	-36.3662
3.1700	-36.2294	3.8100	-28.2681	4.4500	-20.2396	5.0900	-10.1538	5.7300	-33.6380
3.1800	-38.4620	3.8200	-28.0238	4.4600	-20.6400	5.1000	-7.9597	5.7400	-34.1171
3.1900	-40.7616	3.8300	-27.8814	4.4700	-20.7269	5.1100	-6.8117	5.7500	-34.2826
3.2000	-40.7139	3.8400	-27.9358	4.4800	-20.9725	5.1200	-8.6893	5.7600	-35.3196
3.2100	-40.1948	3.8500	-27.9126	4.4900	-21.4135	5.1300	-11.6814	5.7700	-36.4275
3.2200	-39.9686	3.8600	-27.8413	4.5000	-22.0822	5.1400	-14.3739	5.7800	-36.5217
3.2300	-38.7331	3.8700	-27.6975	4.5100	-23.7110	5.1500	-16.9384	5.7900	-35.7625
3.2400	-38.0470	3.8800	-27.4419	4.5200	-24.0888	5.1600	-18.9996	5.8000	-35.6630
3.2500	-36.7753	3.8900	-26.8102	4.5300	-24.2349	5.1700	-21.3623	5.8100	-35.1948
3.2600	-35.7921	3.9000	-25.9543	4.5400	-23.9470	5.1800	-23.5204	5.8200	-35.3206
3.2700	-35.2818	3.9100	-24.9261	4.5500	-23.9350	5.1900	-25.4665	5.8300	-34.4662
3.2800	-35.5013	3.9200	-24.2143	4.5600	-24.3245	5.2000	-26.0657	5.8400	-35.0851
3.2900	-35.9137	3.9300	-23.7336	4.5700	-24.6562	5.2100	-26.6637	5.8500	-34.8731
3.3000	-36.5404	3.9400	-23.3406	4.5800	-24.5610	5.2200	-28.2463	5.8600	-34.0323
3.3100	-37.4204	3.9500	-22.9499	4.5900	-24.8231	5.2300	-29.6883	5.8700	-33.4821
3.3200	-38.2539	3.9600	-22.7819	4.6000	-24.5269	5.2400	-30.1082	5.8800	-33.5602
3.3300	-38.4388	3.9700	-22.9622	4.6100	-25.0140	5.2500	-24.6896	5.8900	-33.4915
3.3400	-38.0365	3.9800	-23.2588	4.6200	-24.7993	5.2600	-24.8121	5.9000	-34.1647
3.3500	-37.8544	3.9900	-23.8690	4.6300	-24.9222	5.2700	-25.8335	5.9100	-34.1993
3.3600	-37.5745	4.0000	-23.4226	4.6400	-25.2444	5.2800	-32.6663	5.9200	-34.8108
3.3700	-36.9783	4.0100	-23.1314	4.6500	-25.6821	5.2900	-31.0262	5.9300	-35.6147
3.3800	-36.5791	4.0200	-22.1969	4.6600	-26.6342	5.3000	-29.4536	5.9400	-34.5567
3.3900	-36.3520	4.0300	-20.9983	4.6700	-26.4147	5.3100	-29.9001	5.9500	-35.3313
3.4000	-35.8822	4.0400	-19.1013	4.6800	-26.0307	5.3200	-31.3891	5.9600	-36.4047
3.4100	-35.5282	4.0500	-16.7502	4.6900	-24.8457	5.3300	-34.5852	5.9700	-38.1745
3.4200	-35.1079	4.0600	-15.1658	4.7000	-24.5566	5.3400	-38.6934	5.9800	-36.6988
3.4300	-34.5932	4.0700	-14.4104	4.7100	-24.5786	5.3500	-45.8539	5.9900	-33.1585
3.4400	-33.7535	4.0800	-14.7075	4.7200	-25.0492	5.3600	-53.9606	6.0000	-33.9597
3.4500	-33.1411	4.0900	-14.6728	4.7300	-25.6336	5.3700	-45.1102	6.0100	-33.2067
3.4600	-33.1628	4.1000	-14.6413	4.7400	-26.5028	5.3800	-36.0359	6.0200	-35.5657
3.4700	-33.1946	4.1100	-14.4390	4.7500	-27.4451	5.3900	-34.3584	6.0300	-43.1746
3.4800	-33.2543	4.1200	-14.0094	4.7600	-28.0714	5.4000	-34.1544	6.0400	-38.4339
3.4900	-33.6409	4.1300	-13.0083	4.7700	-27.5520	5.4100	-44.4491	6.0500	-34.8634
3.5000	-33.8877	4.1400	-11.2658	4.7800	-27.2084	5.4200	-50.4323	6.0600	-31.5691
3.5100	-34.0472	4.1500	-9.5672	4.7900	-26.7429	5.4300	-45.1153	6.0700	-33.0180
3.5200	-34.1209	4.1600	-7.5633	4.8000	-26.1237	5.4400	-36.3193	6.0800	-31.0184
3.5300	-34.0252	4.1700	-5.3258	4.8100	-25.5903	5.4500	-31.2398	6.0900	-31.9390
3.5400	-33.9666	4.1800	-2.9265	4.8200	-25.6125	5.4600	-30.1979	6.1000	-33.0230
3.5500	-34.1427	4.1900	1.0364	4.8300	-25.8545	5.4700	-31.2863	6.1100	-34.4197
3.5600	-34.7263	4.2000	7.7185	4.8400	-26.0694	5.4800	-31.5189	6.1200	-35.8713
3.5700	-34.9544	4.2100	7.0053	4.8500	-26.1012	5.4900	-32.3789	6.1300	-35.9955
3.5800	-35.1571	4.2200	-0.5353	4.8600	-26.3135	5.5000	-33.1596	6.1400	-36.1009
3.5900	-34.6848	4.2300	-4.6027	4.8700	-26.8192	5.5100	-33.9988	6.1500	-35.3686
3.6000	-33.7376	4.2400	-7.3171	4.8800	-26.7577	5.5200	-34.1701	6.1600	-31.0540
3.6100	-32.6927	4.2500	-8.5404	4.8900	-25.2484	5.5300	-34.4260	6.1700	-29.7938
3.6200	-32.2600	4.2600	-10.2590	4.9000	-22.6583	5.5400	-37.0958	6.1800	-33.0938
3.6300	-31.7653	4.2700	-11.3579	4.9100	-22.2274	5.5500	-41.1791	6.1900	-37.6658

6.2000	-45.2037	6.8900	-25.4078	7.5800	-28.4917	8.2700	-28.3832	8.9600	-5.7173
6.2100	-51.0882	6.9000	-23.1942	7.5900	-28.6478	8.2800	-28.8502	8.9700	-2.4201
6.2200	-46.5384	6.9100	-21.3503	7.6000	-28.9233	8.2900	-29.4176	8.9800	0.6583
6.2300	-36.0466	6.9200	-17.3388	7.6100	-29.2834	8.3000	-29.3286	8.9900	4.9135
6.2400	-31.5170	6.9300	-17.7203	7.6200	-29.3356	8.3100	-30.1678	9.0000	4.2505
6.2500	-30.8846	6.9400	-23.8850	7.6300	-29.7124	8.3200	-29.0772	9.0100	-4.2742
6.2600	-31.4661	6.9500	-29.1922	7.6400	-30.2668	8.3300	-27.4744	9.0200	-10.5445
6.2700	-31.3847	6.9600	-33.8603	7.6500	-31.6004	8.3400	-26.2514	9.0300	-16.8869
6.2800	-29.9387	6.9700	-40.1513	7.6600	-32.9436	8.3500	-24.9777	9.0400	-27.7871
6.2900	-33.0017	6.9800	-40.0497	7.6700	-33.8299	8.3600	-22.6501	9.0500	-29.3150
6.3000	-34.5970	6.9900	-37.8277	7.6800	-34.3275	8.3700	-20.5624	9.0600	-19.4462
6.3100	-36.0602	7.0000	-35.2388	7.6900	-34.5287	8.3800	-15.9304	9.0700	-15.4069
6.3200	-35.8639	7.0100	-33.0102	7.7000	-33.8595	8.3900	-13.4187	9.0800	-14.2378
6.3300	-34.2961	7.0200	-30.8299	7.7100	-32.6744	8.4000	-14.6534	9.0900	-13.1768
6.3400	-32.7226	7.0300	-29.9733	7.7200	-32.1943	8.4100	-16.4493	9.1000	-12.6500
6.3500	-31.7720	7.0400	-29.0971	7.7300	-33.0380	8.4200	-17.7887	9.1100	-12.3197
6.3600	-30.5926	7.0500	-28.3903	7.7400	-34.5407	8.4300	-18.9742	9.1200	-12.8187
6.3700	-30.7548	7.0600	-25.8041	7.7500	-34.1280	8.4400	-19.3247	9.1300	-14.1403
6.3800	-32.5610	7.0700	-23.3934	7.7600	-32.5419	8.4500	-19.0929	9.1400	-13.6130
6.3900	-31.7023	7.0800	-20.8640	7.7700	-30.5738	8.4600	-19.1735	9.1500	-12.6869
6.4000	-31.6086	7.0900	-19.6083	7.7800	-29.3895	8.4700	-18.7325	9.1600	-10.7358
6.4100	-33.4294	7.1000	-18.6348	7.7900	-28.4251	8.4800	-19.3503	9.1700	-11.2588
6.4200	-33.6032	7.1100	-17.3282	7.8000	-27.4636	8.4900	-19.1426	9.1800	-12.2350
6.4300	-34.1123	7.1200	-14.9262	7.8100	-26.3871	8.5000	-19.4010	9.1900	-13.8383
6.4400	-35.4230	7.1300	-12.2980	7.8200	-25.6586	8.5100	-19.4367	9.2000	-14.7184
6.4500	-36.9601	7.1400	-6.4285	7.8300	-26.1779	8.5200	-19.7830	9.2100	-14.8285
6.4600	-38.8260	7.1500	4.5174	7.8400	-25.8024	8.5300	-19.9190	9.2200	-13.6689
6.4700	-41.9657	7.1600	-2.4569	7.8500	-26.8776	8.5400	-19.6190	9.2300	-13.4313
6.4800	-40.5741	7.1700	-6.7259	7.8600	-27.5796	8.5500	-18.7297	9.2400	-12.3207
6.4900	-39.8875	7.1800	-8.9491	7.8700	-27.8060	8.5600	-20.0775	9.2500	-11.4824
6.5000	-38.1626	7.1900	-9.3438	7.8800	-27.1252	8.5700	-19.7711	9.2600	-11.7344
6.5100	-32.3765	7.2000	-9.4692	7.8900	-26.8174	8.5800	-19.9456	9.2700	-13.2067
6.5200	-27.5732	7.2100	-8.8048	7.9000	-26.3259	8.5900	-20.1379	9.2800	-14.3862
6.5300	-22.9251	7.2200	-10.4982	7.9100	-25.9028	8.6000	-19.9237	9.2900	-15.3777
6.5400	-29.4014	7.2300	-14.5583	7.9200	-24.9315	8.6100	-20.8629	9.3000	-15.8341
6.5500	-39.0153	7.2400	-17.7540	7.9300	-23.9957	8.6200	-20.8295	9.3100	-15.2689
6.5600	-44.3661	7.2500	-19.8807	7.9400	-23.7163	8.6300	-19.8995	9.3200	-14.3529
6.5700	-42.7027	7.2600	-21.3641	7.9500	-24.2123	8.6400	-19.3360	9.3300	-13.8286
6.5800	-43.4067	7.2700	-21.9303	7.9600	-23.7174	8.6500	-19.5172	9.3400	-14.2811
6.5900	-44.7977	7.2800	-22.0702	7.9700	-23.7598	8.6600	-19.8489	9.3500	-15.0724
6.6000	-42.4619	7.2900	-22.4838	7.9800	-23.9678	8.6700	-20.5582	9.3600	-16.3410
6.6100	-40.0894	7.3000	-23.7505	7.9900	-24.2446	8.6800	-20.8106	9.3700	-16.9327
6.6200	-38.6588	7.3100	-23.4026	8.0000	-23.8828	8.6900	-20.6719	9.3800	-16.6721
6.6300	-37.3493	7.3200	-22.1584	8.0100	-24.1728	8.7000	-20.6341	9.3900	-15.5569
6.6400	-34.3927	7.3300	-24.6142	8.0200	-24.1433	8.7100	-20.4926	9.4000	-14.2971
6.6500	-31.2137	7.3400	-26.0765	8.0300	-25.7342	8.7200	-20.4393	9.4100	-13.5431
6.6600	-27.4938	7.3500	-27.8002	8.0400	-26.5296	8.7300	-20.3329	9.4200	-13.7456
6.6700	-23.0305	7.3600	-29.7957	8.0500	-26.3651	8.7400	-20.0805	9.4300	-14.5008
6.6800	-14.3934	7.3700	-32.2678	8.0600	-25.6491	8.7500	-20.0882	9.4400	-15.3338
6.6900	-16.1826	7.3800	-34.7682	8.0700	-25.9319	8.7600	-20.5024	9.4500	-16.2776
6.7000	-18.5477	7.3900	-36.7243	8.0800	-26.9082	8.7700	-20.3555	9.4600	-16.0817
6.7100	-17.2401	7.4000	-39.1982	8.0900	-26.8631	8.7800	-19.8683	9.4700	-14.7990
6.7200	-23.0638	7.4100	-38.3844	8.1000	-26.9812	8.7900	-19.2696	9.4800	-13.8381
6.7300	-31.6507	7.4200	-38.1752	8.1100	-26.8582	8.8000	-18.6828	9.4900	-13.2938
6.7400	-32.2335	7.4300	-37.4216	8.1200	-26.8507	8.8100	-18.2564	9.5000	-13.0837
6.7500	-30.9150	7.4400	-30.9094	8.1300	-27.0295	8.8200	-17.8454	9.5100	-13.2057
6.7600	-39.4858	7.4500	-23.6473	8.1400	-27.0330	8.8300	-17.0690	9.5200	-13.6696
6.7700	-36.3568	7.4600	-20.9446	8.1500	-27.0311	8.8400	-17.0500	9.5300	-14.1731
6.7800	-36.0604	7.4700	-21.8015	8.1600	-27.1245	8.8500	-16.3935	9.5400	-14.4433
6.7900	-35.0731	7.4800	-23.4856	8.1700	-27.3979	8.8600	-15.3790	9.5500	-14.1206
6.8000	-34.0116	7.4900	-25.0097	8.1800	-28.1778	8.8700	-14.5832	9.5600	-13.2697
6.8100	-35.8889	7.5000	-25.7216	8.1900	-27.2444	8.8800	-13.4422	9.5700	-11.9691
6.8200	-37.9052	7.5100	-25.1776	8.2000	-27.7423	8.8900	-12.3972	9.5800	-11.4265
6.8300	-31.8325	7.5200	-23.6148	8.2100	-27.5507	8.9000	-11.8980	9.5900	-11.4977
6.8400	-30.5171	7.5300	-22.5612	8.2200	-26.8482	8.9100	-11.7679	9.6000	-11.1548
6.8500	-31.1955	7.5400	-23.9413	8.2300	-26.6725	8.9200	-11.2130	9.6100	-12.2718
6.8600	-30.9532	7.5500	-26.0969	8.2400	-26.2485	8.9300	-11.6121	9.6200	-12.5773
6.8700	-28.7749	7.5600	-27.4067	8.2500	-26.7833	8.9400	-11.1208	9.6300	-12.2665
6.8800	-26.9473	7.5700	-28.0788	8.2600	-27.3803	8.9500	-8.9764	9.6400	-11.2429

9.6500	-9.5196	10.3400	-32.0165	11.0300	-12.3389	11.7200	-12.0695	12.4100	-14.7079
9.6600	-8.9799	10.3500	-30.2136	11.0400	-10.7085	11.7300	-14.1375	12.4200	-14.7333
9.6700	-8.1925	10.3600	-28.5538	11.0500	-8.5343	11.7400	-15.9629	12.4300	-14.8248
9.6800	-7.8667	10.3700	-28.0332	11.0600	-8.8654	11.7500	-16.3785	12.4400	-16.3936
9.6900	-7.6067	10.3800	-28.9939	11.0700	-8.2773	11.7600	-17.0288	12.4500	-15.7121
9.7000	-7.0074	10.3900	-28.0793	11.0800	-8.3728	11.7700	-15.0014	12.4600	-15.1093
9.7100	-6.1156	10.4000	-26.4791	11.0900	-10.7373	11.7800	-14.5197	12.4700	-15.9273
9.7200	-4.9180	10.4100	-25.8783	11.1000	-11.8040	11.7900	-13.7375	12.4800	-17.2774
9.7300	-4.0866	10.4200	-23.4969	11.1100	-12.4570	11.8000	-12.3467	12.4900	-21.2190
9.7400	-2.6048	10.4300	-22.0616	11.1200	-13.3964	11.8100	-13.1465	12.5000	-14.6207
9.7500	-0.8251	10.4400	-22.5767	11.1300	-13.0103	11.8200	-14.3989	12.5100	-12.2067
9.7600	-3.8270	10.4500	-23.5520	11.1400	-11.9582	11.8300	-15.3323	12.5200	-11.1949
9.7700	-9.7235	10.4600	-24.0425	11.1500	-10.2048	11.8400	-16.3300	12.5300	-10.9405
9.7800	-7.6760	10.4700	-23.5486	11.1600	-9.4289	11.8500	-15.3110	12.5400	-8.4108
9.7900	-5.9372	10.4800	-24.0816	11.1700	-7.5146	11.8600	-14.2984	12.5500	-7.2917
9.8000	-4.5073	10.4900	-22.7891	11.1800	-3.9302	11.8700	-12.8014	12.5600	-6.7899
9.8100	-4.4681	10.5000	-20.2940	11.1900	-7.5240	11.8800	-11.8760	12.5700	-7.5881
9.8200	-3.9548	10.5100	-19.0884	11.2000	-10.3508	11.8900	-11.1110	12.5800	-10.4750
9.8300	-3.0028	10.5200	-17.8811	11.2100	-11.0455	11.9000	-11.7420	12.5900	-8.9484
9.8400	-1.4251	10.5300	-17.7053	11.2200	-11.4287	11.9100	-11.9375	12.6000	-6.8998
9.8500	0.8057	10.5400	-17.7130	11.2300	-12.1585	11.9200	-12.2410	12.6100	-5.5469
9.8600	3.6009	10.5500	-17.2279	11.2400	-10.0374	11.9300	-13.3263	12.6200	-3.2713
9.8700	6.5045	10.5600	-16.1905	11.2500	-10.4833	11.9400	-11.2543	12.6300	-4.8985
9.8800	9.6675	10.5700	-15.2899	11.2600	-10.8844	11.9500	-9.6735	12.6400	-11.0423
9.8900	14.3165	10.5800	-14.8774	11.2700	-11.0141	11.9600	-10.5712	12.6500	-14.3084
9.9000	19.8021	10.5900	-14.4844	11.2800	-10.7678	11.9700	-11.0681	12.6600	-15.9162
9.9100	23.5441	10.6000	-14.5034	11.2900	-11.5295	11.9800	-11.8111	12.6700	-18.2169
9.9200	17.6353	10.6100	-13.9096	11.3000	-11.7224	11.9900	-12.7941	12.6800	-22.9629
9.9300	16.6620	10.6200	-13.9828	11.3100	-11.9725	12.0000	-13.4608	12.6900	-31.3730
9.9400	15.9491	10.6300	-13.4132	11.3200	-12.8579	12.0100	-13.7301	12.7000	-20.2664
9.9500	5.9292	10.6400	-10.1057	11.3300	-13.0902	12.0200	-13.6001	12.7100	-21.0678
9.9600	-1.1438	10.6500	-7.6643	11.3400	-14.4039	12.0300	-12.2978	12.7200	-23.1445
9.9700	-5.6714	10.6600	-6.0852	11.3500	-13.2066	12.0400	-11.1441	12.7300	-24.0640
9.9800	-7.0341	10.6700	-6.0845	11.3600	-12.7858	12.0500	-11.8306	12.7400	-24.0649
9.9900	-5.4884	10.6800	-6.3901	11.3700	-12.6222	12.0600	-13.7932	12.7500	-22.6331
10.0000	-6.4100	10.6900	-6.4009	11.3800	-11.9572	12.0700	-16.0943	12.7600	-22.6284
10.0100	-10.9368	10.7000	-6.0372	11.3900	-12.1326	12.0800	-18.5966	12.7700	-21.9889
10.0200	-14.6687	10.7100	-4.6644	11.4000	-12.3652	12.0900	-19.3276	12.7800	-21.5572
10.0300	-19.1309	10.7200	-2.4340	11.4100	-12.8813	12.1000	-18.1952	12.7900	-21.0310
10.0400	-23.0819	10.7300	2.2453	11.4200	-12.3229	12.1100	-16.6071	12.8000	-20.1400
10.0500	-23.5618	10.7400	9.6447	11.4300	-13.1329	12.1200	-14.5316	12.8100	-23.2402
10.0600	-22.3643	10.7500	-1.8515	11.4400	-12.9846	12.1300	-13.9790	12.8200	-24.4584
10.0700	-21.9016	10.7600	-20.6930	11.4500	-12.7372	12.1400	-12.8380	12.8300	-24.0083
10.0800	-22.3799	10.7700	-18.5686	11.4600	-12.9533	12.1500	-12.3017	12.8400	-24.4301
10.0900	-24.0438	10.7800	-14.8219	11.4700	-13.8478	12.1600	-11.8415	12.8500	-25.3884
10.1000	-25.9435	10.7900	-10.6762	11.4800	-15.0716	12.1700	-11.9574	12.8600	-25.8104
10.1100	-27.0205	10.8000	-6.4952	11.4900	-15.5627	12.1800	-11.3692	12.8700	-26.3393
10.1200	-26.7673	10.8100	-3.3222	11.5000	-14.2988	12.1900	-11.1974	12.8800	-26.8086
10.1300	-26.8979	10.8200	-0.8703	11.5100	-15.3735	12.2000	-11.9613	12.8900	-26.8196
10.1400	-27.7033	10.8300	1.6871	11.5200	-12.8758	12.2100	-12.5469	12.9000	-26.1826
10.1500	-28.2037	10.8400	-0.5002	11.5300	-11.8601	12.2200	-11.7050	12.9100	-26.0490
10.1600	-28.5910	10.8500	-3.1498	11.5400	-10.5867	12.2300	-12.6608	12.9200	-24.6619
10.1700	-28.9930	10.8600	-5.2858	11.5500	-9.2191	12.2400	-15.5798	12.9300	-23.7197
10.1800	-30.9132	10.8700	-6.1363	11.5600	-10.2382	12.2500	-15.0560	12.9400	-22.7936
10.1900	-30.9965	10.8800	-4.7664	11.5700	-12.8519	12.2600	-13.4940	12.9500	-22.2444
10.2000	-31.9554	10.8900	-4.5877	11.5800	-13.6959	12.2700	-13.0275	12.9600	-22.5766
10.2100	-34.3282	10.9000	-4.1011	11.5900	-14.0821	12.2800	-9.6341	12.9700	-27.8936
10.2200	-36.4667	10.9100	-5.6757	11.6000	-12.9103	12.2900	-10.1771	12.9800	-28.9188
10.2300	-38.9489	10.9200	-6.7742	11.6100	-10.5608	12.3000	-10.8236	12.9900	-23.7954
10.2400	-44.9218	10.9300	-8.9721	11.6200	-9.3324	12.3100	-12.5484		
10.2500	-57.4566	10.9400	-9.5878	11.6300	-9.0057	12.3200	-14.3431		
10.2600	-39.9635	10.9500	-8.5928	11.6400	-9.8789	12.3300	-15.8767		
10.2700	-36.1284	10.9600	-8.8412	11.6500	-11.1894	12.3400	-15.4364		
10.2800	-33.3285	10.9700	-9.3771	11.6600	-12.4710	12.3500	-13.8839		
10.2900	-31.0469	10.9800	-9.3012	11.6700	-12.0015	12.3600	-10.3981		
10.3000	-29.9614	10.9900	-9.7576	11.6800	-12.2590	12.3700	-12.2312		
10.3100	-30.2801	11.0000	-9.6570	11.6900	-11.4895	12.3800	-13.2598		
10.3200	-31.7783	11.0100	-11.2926	11.7000	-10.6820	12.3900	-15.1952		
10.3300	-34.0731	11.0200	-12.4550	11.7100	-10.6676	12.4000	-14.6007		

CYLINDER #4
(Normalized with Post-Test Calibration)

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
3.0000	-43.7392	3.6400	-31.5733	4.2800	-12.7981	4.9200	-23.3256	5.5600	-36.5660
3.0100	-45.8714	3.6500	-30.8582	4.2900	-13.9953	4.9300	-27.0003	5.5700	-33.2680
3.0200	-48.0309	3.6600	-30.2976	4.3000	-15.0121	4.9400	-33.1395	5.5800	-32.8324
3.0300	-47.7715	3.6700	-30.1086	4.3100	-15.8038	4.9500	-29.4236	5.5900	-32.6564
3.0400	-47.2683	3.6800	-29.7063	4.3200	-16.2720	4.9600	-20.4305	5.6000	-31.5860
3.0500	-49.3037	3.6900	-29.0095	4.3300	-15.9002	4.9700	-9.3700	5.6100	-31.2917
3.0600	-45.3923	3.7000	-28.3002	4.3400	-16.6802	4.9800	-10.1481	5.6200	-31.8908
3.0700	-44.8827	3.7100	-27.8030	4.3500	-16.2499	4.9900	-15.6996	5.6300	-33.4350
3.0800	-41.7863	3.7200	-27.9329	4.3600	-17.1514	5.0000	-18.5903	5.6400	-35.3544
3.0900	-37.6945	3.7300	-27.5152	4.3700	-17.8720	5.0100	-20.8772	5.6500	-39.4309
3.1000	-37.5967	3.7400	-28.3534	4.3800	-18.4095	5.0200	-22.5685	5.6600	-43.0861
3.1100	-38.7566	3.7500	-28.9541	4.3900	-19.6037	5.0300	-24.1187	5.6700	-39.4683
3.1200	-40.4700	3.7600	-29.5031	4.4000	-19.8874	5.0400	-24.8937	5.6800	-38.2818
3.1300	-41.4781	3.7700	-29.5626	4.4100	-19.8973	5.0500	-26.1047	5.6900	-37.5419
3.1400	-40.9683	3.7800	-29.3560	4.4200	-19.4649	5.0600	-26.2877	5.7000	-36.6944
3.1500	-40.9601	3.7900	-28.9302	4.4300	-19.6839	5.0700	-21.9992	5.7100	-36.9700
3.1600	-38.3400	3.8000	-28.4686	4.4400	-19.7902	5.0800	-13.6885	5.7200	-34.8603
3.1700	-35.8193	3.8100	-28.0317	4.4500	-19.5575	5.0900	-9.8518	5.7300	-31.4638
3.1800	-37.0670	3.8200	-27.7146	4.4600	-19.9449	5.1000	-7.7289	5.7400	-32.1287
3.1900	-39.5829	3.8300	-27.6129	4.4700	-20.3943	5.1100	-7.0961	5.7500	-32.2535
3.2000	-40.3780	3.8400	-27.7536	4.4800	-21.0581	5.1200	-8.9255	5.7600	-33.4121
3.2100	-40.3901	3.8500	-27.9791	4.4900	-22.1013	5.1300	-12.1169	5.7700	-34.5006
3.2200	-40.8646	3.8600	-27.9042	4.5000	-23.2520	5.1400	-15.2073	5.7800	-34.9411
3.2300	-40.2778	3.8700	-27.8272	4.5100	-24.8428	5.1500	-17.8785	5.7900	-34.0975
3.2400	-38.7964	3.8800	-27.5715	4.5200	-25.2959	5.1600	-20.0866	5.8000	-34.3739
3.2500	-37.2632	3.8900	-26.9438	4.5300	-25.4336	5.1700	-22.4211	5.8100	-34.1088
3.2600	-36.0903	3.9000	-25.6671	4.5400	-25.0427	5.1800	-24.5329	5.8200	-34.1207
3.2700	-34.7557	3.9100	-25.1595	4.5500	-24.4576	5.1900	-26.8598	5.8300	-33.3062
3.2800	-34.7762	3.9200	-24.5298	4.5600	-23.9788	5.2000	-27.5808	5.8400	-33.2264
3.2900	-35.1020	3.9300	-24.0177	4.5700	-24.0914	5.2100	-28.5743	5.8500	-33.1165
3.3000	-35.9175	3.9400	-23.5616	4.5800	-24.2767	5.2200	-29.8806	5.8600	-32.5879
3.3100	-36.8747	3.9500	-22.9687	4.5900	-24.4890	5.2300	-30.7618	5.8700	-32.1619
3.3200	-37.7182	3.9600	-22.5106	4.6000	-24.6331	5.2400	-30.3679	5.8800	-32.8076
3.3300	-38.2650	3.9700	-22.3424	4.6100	-25.0964	5.2500	-24.5648	5.8900	-33.4031
3.3400	-37.8963	3.9800	-22.4174	4.6200	-24.7088	5.2600	-25.4178	5.9000	-34.4120
3.3500	-37.5856	3.9900	-23.1486	4.6300	-24.6540	5.2700	-27.6965	5.9100	-34.4793
3.3600	-37.3608	4.0000	-23.0664	4.6400	-24.6632	5.2800	-34.2364	5.9200	-34.4348
3.3700	-37.2264	4.0100	-23.1968	4.6500	-24.9422	5.2900	-32.6756	5.9300	-35.0285
3.3800	-36.8783	4.0200	-22.4472	4.6600	-26.0895	5.3000	-31.4206	5.9400	-34.6983
3.3900	-36.6638	4.0300	-21.3293	4.6700	-26.2699	5.3100	-32.1956	5.9500	-35.9665
3.4000	-36.0872	4.0400	-19.8207	4.6800	-26.0459	5.3200	-33.5793	5.9600	-37.2158
3.4100	-35.6165	4.0500	-17.7471	4.6900	-25.5794	5.3300	-36.1749	5.9700	-38.8847
3.4200	-35.0004	4.0600	-16.0953	4.7000	-25.2159	5.3400	-39.9537	5.9800	-36.5130
3.4300	-34.6677	4.0700	-14.9056	4.7100	-24.9355	5.3500	-46.9311	5.9900	-32.0903
3.4400	-33.9033	4.0800	-14.5846	4.7200	-25.2684	5.3600	-54.9253	6.0000	-32.6681
3.4500	-33.1527	4.0900	-14.1827	4.7300	-25.7387	5.3700	-46.0732	6.0100	-32.1364
3.4600	-33.0657	4.1000	-14.0375	4.7400	-26.6336	5.3800	-37.0459	6.0200	-34.8273
3.4700	-33.0496	4.1100	-13.7514	4.7500	-27.6811	5.3900	-35.8576	6.0300	-43.1876
3.4800	-33.1654	4.1200	-13.4196	4.7600	-28.1552	5.4000	-35.8162	6.0400	-38.7774
3.4900	-33.2098	4.1300	-12.6350	4.7700	-27.4667	5.4100	-46.8440	6.0500	-35.6329
3.5000	-33.3178	4.1400	-11.0595	4.7800	-27.5428	5.4200	-51.7768	6.0600	-31.9945
3.5100	-33.4821	4.1500	-9.4462	4.7900	-26.9415	5.4300	-45.6684	6.0700	-32.0468
3.5200	-33.6206	4.1600	-7.4825	4.8000	-26.2427	5.4400	-36.8280	6.0800	-32.2552
3.5300	-33.7121	4.1700	-5.1440	4.8100	-25.6911	5.4500	-31.7360	6.0900	-31.8112
3.5400	-33.5306	4.1800	-2.5576	4.8200	-25.8824	5.4600	-30.7587	6.1000	-33.2980
3.5500	-33.5766	4.1900	1.4036	4.8300	-26.2513	5.4700	-31.8022	6.1100	-33.9657
3.5600	-34.1800	4.2000	8.0569	4.8400	-26.3296	5.4800	-32.3576	6.1200	-34.5850
3.5700	-34.6758	4.2100	7.3139	4.8500	-25.8415	5.4900	-32.5386	6.1300	-34.6091
3.5800	-35.0895	4.2200	-0.1308	4.8600	-25.7598	5.5000	-32.5960	6.1400	-35.8199
3.5900	-34.8029	4.2300	-4.3643	4.8700	-26.9513	5.5100	-33.1734	6.1500	-34.9281
3.6000	-34.1334	4.2400	-7.2343	4.8800	-27.2492	5.5200	-33.4255	6.1600	-32.9218
3.6100	-33.3182	4.2500	-8.5841	4.8900	-25.9490	5.5300	-33.9773	6.1700	-31.5530
3.6200	-32.7345	4.2600	-10.3838	4.9000	-23.0909	5.5400	-35.9878	6.1800	-31.0513
3.6300	-32.2573	4.2700	-11.5954	4.9100	-22.2850	5.5500	-39.0577	6.1900	-36.3991

6.2000	-44.5010	6.8900	-28.8354	7.5800	-28.5314	8.2700	-29.1810	8.9600	-6.0948
6.2100	-52.4831	6.9000	-27.4556	7.5900	-29.0149	8.2800	-28.6773	8.9700	-3.3727
6.2200	-50.2934	6.9100	-26.4506	7.6000	-29.1370	8.2900	-28.6760	8.9800	-0.5212
6.2300	-33.9221	6.9200	-25.5595	7.6100	-28.9721	8.3000	-29.7156	8.9900	4.7697
6.2400	-29.5695	6.9300	-23.6789	7.6200	-28.5188	8.3100	-30.5501	9.0000	3.2110
6.2500	-31.2527	6.9400	-21.9940	7.6300	-28.1693	8.3200	-29.7966	9.0100	-5.2480
6.2600	-30.9749	6.9500	-24.3159	7.6400	-29.5325	8.3300	-28.1924	9.0200	-12.3495
6.2700	-30.8307	6.9600	-30.4944	7.6500	-30.8500	8.3400	-27.4582	9.0300	-18.4092
6.2800	-31.0997	6.9700	-37.5623	7.6600	-32.4632	8.3500	-25.5094	9.0400	-29.1023
6.2900	-30.0099	6.9800	-37.6492	7.6700	-33.1975	8.3600	-23.6365	9.0500	-30.7510
6.3000	-33.0708	6.9900	-35.6274	7.6800	-33.9754	8.3700	-19.2873	9.0600	-20.6182
6.3100	-34.9198	7.0000	-33.2595	7.6900	-34.4600	8.3800	-14.6702	9.0700	-16.2697
6.3200	-35.5521	7.0100	-31.8443	7.7000	-33.8319	8.3900	-6.5807	9.0800	-13.6930
6.3300	-34.9955	7.0200	-30.9730	7.7100	-32.9654	8.4000	-7.8249	9.0900	-12.6206
6.3400	-33.5809	7.0300	-30.4262	7.7200	-33.0405	8.4100	-12.3224	9.1000	-11.7694
6.3500	-32.6843	7.0400	-29.7378	7.7300	-33.9123	8.4200	-15.1027	9.1100	-10.5149
6.3600	-32.8290	7.0500	-28.1750	7.7400	-35.4804	8.4300	-17.2994	9.1200	-9.8578
6.3700	-32.9401	7.0600	-26.2573	7.7500	-34.9690	8.4400	-18.3776	9.1300	-12.3007
6.3800	-34.5942	7.0700	-24.1439	7.7600	-33.6499	8.4500	-18.4361	9.1400	-12.8976
6.3900	-33.9711	7.0800	-22.0988	7.7700	-31.9940	8.4600	-18.5912	9.1500	-12.2297
6.4000	-30.6499	7.0900	-20.7522	7.7800	-31.0144	8.4700	-18.0899	9.1600	-10.1180
6.4100	-28.8800	7.1000	-19.7072	7.7900	-29.7105	8.4800	-18.4423	9.1700	-10.6635
6.4200	-30.6545	7.1100	-18.5188	7.8000	-28.1989	8.4900	-18.3942	9.1800	-11.5608
6.4300	-32.8768	7.1200	-16.4759	7.8100	-27.0864	8.5000	-18.6542	9.1900	-13.1774
6.4400	-34.3052	7.1300	-13.5674	7.8200	-26.1824	8.5100	-18.5701	9.2000	-14.0605
6.4500	-34.8547	7.1400	-10.4630	7.8300	-27.5902	8.5200	-18.6679	9.2100	-14.1913
6.4600	-38.1285	7.1500	-7.4156	7.8400	-27.4066	8.5300	-18.6876	9.2200	-13.7688
6.4700	-41.9826	7.1600	-4.2855	7.8500	-28.0799	8.5400	-18.6038	9.2300	-13.8059
6.4800	-41.7389	7.1700	4.4852	7.8600	-28.6189	8.5500	-18.8330	9.2400	-12.0628
6.4900	-41.5340	7.1800	-3.4228	7.8700	-28.7820	8.5600	-19.2285	9.2500	-11.9325
6.5000	-41.3153	7.1900	-6.4914	7.8800	-28.1535	8.5700	-19.8274	9.2600	-11.8048
6.5100	-36.7259	7.2000	-6.9952	7.8900	-27.3837	8.5800	-19.9830	9.2700	-12.8442
6.5200	-33.2536	7.2100	-7.0835	7.9000	-26.8251	8.5900	-20.1453	9.2800	-13.5285
6.5300	-27.3541	7.2200	-8.6621	7.9100	-25.5391	8.6000	-20.0906	9.2900	-14.7501
6.5400	-19.4313	7.2300	-11.9117	7.9200	-24.5266	8.6100	-20.4040	9.3000	-14.7999
6.5500	-30.8265	7.2400	-15.8142	7.9300	-24.0946	8.6200	-20.1828	9.3100	-14.9170
6.5600	-40.3324	7.2500	-18.5687	7.9400	-22.8449	8.6300	-19.7274	9.3200	-14.8982
6.5700	-40.3523	7.2600	-20.0825	7.9500	-22.9705	8.6400	-18.6203	9.3300	-14.0887
6.5800	-41.6628	7.2700	-21.0435	7.9600	-23.0381	8.6500	-18.7989	9.3400	-13.9442
6.5900	-43.5279	7.2800	-21.6280	7.9700	-22.8201	8.6600	-19.1839	9.3500	-14.9594
6.6000	-42.1865	7.2900	-21.6340	7.9800	-22.8134	8.6700	-20.1962	9.3600	-16.3315
6.6100	-40.7258	7.3000	-22.5103	7.9900	-23.3608	8.6800	-20.8246	9.3700	-16.7753
6.6200	-39.5617	7.3100	-22.7438	8.0000	-23.2354	8.6900	-20.8624	9.3800	-16.4785
6.6300	-37.6361	7.3200	-21.3938	8.0100	-23.0876	8.7000	-20.8815	9.3900	-15.2344
6.6400	-35.0576	7.3300	-24.7164	8.0200	-22.7287	8.7100	-20.1439	9.4000	-15.2452
6.6500	-32.0015	7.3400	-26.7112	8.0300	-24.6117	8.7200	-20.5414	9.4100	-13.7920
6.6600	-29.2050	7.3500	-28.6161	8.0400	-25.8654	8.7300	-20.0713	9.4200	-13.4681
6.6700	-25.9560	7.3600	-31.0703	8.0500	-25.8995	8.7400	-20.0327	9.4300	-14.6616
6.6800	-20.3231	7.3700	-33.8615	8.0600	-25.3845	8.7500	-20.0222	9.4400	-15.8355
6.6900	-11.7369	7.3800	-35.9842	8.0700	-25.0947	8.7600	-20.4718	9.4500	-16.8609
6.7000	-14.5307	7.3900	-37.9839	8.0800	-25.1962	8.7700	-20.5328	9.4600	-16.8145
6.7100	-11.4903	7.4000	-40.8559	8.0900	-25.5258	8.7800	-20.2642	9.4700	-14.8567
6.7200	-17.9537	7.4100	-40.5285	8.1000	-25.6355	8.7900	-19.1506	9.4800	-13.7768
6.7300	-28.2395	7.4200	-41.1274	8.1100	-25.6050	8.8000	-19.0426	9.4900	-13.0387
6.7400	-30.9362	7.4300	-40.7685	8.1200	-26.3433	8.8100	-18.8789	9.5000	-12.2935
6.7500	-30.1981	7.4400	-35.2383	8.1300	-25.9787	8.8200	-18.4741	9.5100	-13.5421
6.7600	-38.5048	7.4500	-28.8328	8.1400	-26.0769	8.8300	-17.9425	9.5200	-14.3840
6.7700	-35.6505	7.4600	-23.0391	8.1500	-26.2731	8.8400	-18.0066	9.5300	-14.9673
6.7800	-35.9897	7.4700	-20.0253	8.1600	-26.2175	8.8500	-17.7785	9.5400	-15.3700
6.7900	-34.4320	7.4800	-20.5216	8.1700	-26.9784	8.8600	-17.0809	9.5500	-14.8400
6.8000	-34.1346	7.4900	-22.1658	8.1800	-27.7800	8.8700	-16.0334	9.5600	-13.6151
6.8100	-36.1195	7.5000	-23.6508	8.1900	-26.7960	8.8800	-14.5848	9.5700	-12.1677
6.8200	-38.0862	7.5100	-23.9777	8.2000	-26.9357	8.8900	-12.4404	9.5800	-11.6480
6.8300	-33.0949	7.5200	-22.9630	8.2100	-27.1499	8.9000	-11.8773	9.5900	-11.6883
6.8400	-31.5869	7.5300	-21.3714	8.2200	-27.0020	8.9100	-11.8184	9.6000	-11.6290
6.8500	-31.7786	7.5400	-21.6329	8.2300	-26.9985	8.9200	-11.4633	9.6100	-12.8874
6.8600	-31.3806	7.5500	-24.0832	8.2400	-26.5987	8.9300	-11.9529	9.6200	-13.0043
6.8700	-30.3693	7.5600	-26.6165	8.2500	-27.4325	8.9400	-11.5680	9.6300	-12.8030
6.8800	-29.3445	7.5700	-27.9164	8.2600	-28.2307	8.9500	-9.6688	9.6400	-12.0698

9.6500	-10.3586	10.3400	-32.6388	11.0300	-13.0371	11.7200	-12.6846	12.4100	-12.3850
9.6600	-9.7811	10.3500	-31.0128	11.0400	-11.2684	11.7300	-14.9232	12.4200	-13.1929
9.6700	-8.9676	10.3600	-30.0778	11.0500	-9.9759	11.7400	-16.4118	12.4300	-12.8206
9.6800	-8.0192	10.3700	-27.9918	11.0600	-7.4446	11.7500	-16.1774	12.4400	-14.3744
9.6900	-8.5674	10.3800	-30.5736	11.0700	-8.0040	11.7600	-17.8892	12.4500	-16.0429
9.7000	-8.5286	10.3900	-28.9522	11.0800	-8.6761	11.7700	-16.5245	12.4600	-17.4236
9.7100	-7.9068	10.4000	-27.0916	11.0900	-9.9870	11.7800	-14.8307	12.4700	-16.6682
9.7200	-6.0172	10.4100	-26.2552	11.1000	-11.4373	11.7900	-13.8799	12.4800	-17.6927
9.7300	-5.0031	10.4200	-24.0171	11.1100	-11.9307	11.8000	-12.9315	12.4900	-20.2616
9.7400	-3.5953	10.4300	-22.0156	11.1200	-13.0050	11.8100	-13.2433	12.5000	-11.5712
9.7500	-1.9420	10.4400	-22.6292	11.1300	-13.0372	11.8200	-14.1634	12.5100	-8.6696
9.7600	-4.2103	10.4500	-23.7852	11.1400	-12.1246	11.8300	-15.0717	12.5200	-8.7473
9.7700	-10.7575	10.4600	-24.5407	11.1500	-10.1550	11.8400	-15.3313	12.5300	-8.2292
9.7800	-9.0659	10.4700	-24.6818	11.1600	-9.0843	11.8500	-15.3417	12.5400	-8.5522
9.7900	-7.2665	10.4800	-24.4797	11.1700	-5.9576	11.8600	-14.1044	12.5500	-8.8879
9.8000	-5.9360	10.4900	-23.4803	11.1800	-3.0945	11.8700	-12.3730	12.5600	-8.5269
9.8100	-5.2486	10.5000	-21.0231	11.1900	-6.9756	11.8800	-11.8654	12.5700	-8.2602
9.8200	-4.8768	10.5100	-19.7225	11.2000	-9.7547	11.8900	-11.5206	12.5800	-10.4308
9.8300	-4.3601	10.5200	-18.4659	11.2100	-9.9206	11.9000	-12.0025	12.5900	-3.6541
9.8400	-3.2722	10.5300	-18.0331	11.2200	-10.9547	11.9100	-12.4382	12.6000	-1.9190
9.8500	-1.4623	10.5400	-18.0635	11.2300	-11.5734	11.9200	-13.1403	12.6100	-1.8688
9.8600	0.6683	10.5500	-17.7169	11.2400	-11.1790	11.9300	-13.9769	12.6200	-0.4484
9.8700	2.9156	10.5600	-17.3212	11.2500	-11.1285	11.9400	-12.7569	12.6300	-4.3127
9.8800	4.3800	10.5700	-16.2754	11.2600	-10.4719	11.9500	-11.1126	12.6400	-10.9773
9.8900	5.4280	10.5800	-15.7773	11.2700	-10.4417	11.9600	-11.2949	12.6500	-15.6975
9.9000	6.4236	10.5900	-15.4139	11.2800	-10.4084	11.9700	-11.6527	12.6600	-18.0324
9.9100	8.7686	10.6000	-15.7634	11.2900	-11.2340	11.9800	-12.5770	12.6700	-20.2407
9.9200	14.3904	10.6100	-15.7802	11.3000	-11.7094	11.9900	-14.1190	12.6800	-24.5955
9.9300	21.5290	10.6200	-15.4822	11.3100	-12.1432	12.0000	-15.1145	12.6900	-31.4844
9.9400	20.8697	10.6300	-14.1486	11.3200	-13.6090	12.0100	-15.6675	12.7000	-19.5340
9.9500	11.7887	10.6400	-11.6551	11.3300	-13.5911	12.0200	-15.3541	12.7100	-19.4451
9.9600	3.0486	10.6500	-9.1108	11.3400	-14.3845	12.0300	-13.5835	12.7200	-20.9794
9.9700	-2.4633	10.6600	-7.9411	11.3500	-13.0901	12.0400	-11.6520	12.7300	-22.3406
9.9800	-4.0804	10.6700	-7.2287	11.3600	-12.7438	12.0500	-11.9975	12.7400	-21.7274
9.9900	-2.6900	10.6800	-7.6142	11.3700	-12.6361	12.0600	-14.2081	12.7500	-21.0452
10.0000	-4.1440	10.6900	-7.6187	11.3800	-12.0741	12.0700	-16.7686	12.7600	-21.9468
10.0100	-9.1636	10.7000	-7.0164	11.3900	-12.3720	12.0800	-18.5329	12.7700	-22.4024
10.0200	-13.3652	10.7100	-5.7614	11.4000	-12.6391	12.0900	-18.9132	12.7800	-22.4630
10.0300	-18.5231	10.7200	-3.4477	11.4100	-13.0312	12.1000	-16.9321	12.7900	-22.6916
10.0400	-22.0073	10.7300	0.1058	11.4200	-12.9428	12.1100	-16.3846	12.8000	-22.3383
10.0500	-23.0055	10.7400	4.8509	11.4300	-13.0665	12.1200	-13.5440	12.8100	-24.5117
10.0600	-22.2189	10.7500	-3.4916	11.4400	-13.0458	12.1300	-13.2346	12.8200	-24.4800
10.0700	-21.6782	10.7600	-22.2048	11.4500	-13.0362	12.1400	-11.9924	12.8300	-24.2310
10.0800	-21.9595	10.7700	-20.7721	11.4600	-13.3996	12.1500	-11.6615	12.8400	-23.1278
10.0900	-23.2634	10.7800	-17.8441	11.4700	-14.4919	12.1600	-10.7753	12.8500	-23.2636
10.1000	-25.3179	10.7900	-13.2194	11.4800	-15.5683	12.1700	-11.1182	12.8600	-24.3938
10.1100	-27.0268	10.8000	-9.4142	11.4900	-16.2132	12.1800	-10.3617	12.8700	-24.1450
10.1200	-26.5375	10.8100	-5.9942	11.5000	-16.4311	12.1900	-10.1846	12.8800	-25.7540
10.1300	-26.3481	10.8200	-2.5393	11.5100	-15.0301	12.2000	-10.2878	12.8900	-26.1451
10.1400	-27.1249	10.8300	-0.2311	11.5200	-13.6460	12.2100	-11.2261	12.9000	-25.2160
10.1500	-27.7088	10.8400	-1.3167	11.5300	-11.7745	12.2200	-10.4898	12.9100	-26.2212
10.1600	-28.3747	10.8500	-3.8018	11.5400	-10.8883	12.2300	-12.7507	12.9200	-24.8790
10.1700	-29.0552	10.8600	-5.6237	11.5500	-9.5059	12.2400	-15.4808	12.9300	-24.5604
10.1800	-31.0223	10.8700	-5.9556	11.5600	-10.6088	12.2500	-14.4588	12.9400	-23.5394
10.1900	-30.9749	10.8800	-4.8700	11.5700	-13.4944	12.2600	-13.4390	12.9500	-24.2083
10.2000	-31.5073	10.8900	-5.9384	11.5800	-14.7916	12.2700	-12.0683	12.9600	-24.3039
10.2100	-33.1383	10.9000	-5.1795	11.5900	-15.7434	12.2800	-9.3750	12.9700	-28.8595
10.2200	-35.5980	10.9100	-5.5977	11.6000	-14.6672	12.2900	-10.1895	12.9800	-29.0672
10.2300	-38.7126	10.9200	-6.1674	11.6100	-11.7524	12.3000	-11.0330	12.9900	-24.7875
10.2400	-45.2658	10.9300	-8.4085	11.6200	-9.7284	12.3100	-11.3840		
10.2500	-57.6811	10.9400	-9.1728	11.6300	-8.9434	12.3200	-13.4655		
10.2600	-40.1445	10.9500	-8.5341	11.6400	-9.6803	12.3300	-15.0631		
10.2700	-36.2668	10.9600	-8.1909	11.6500	-10.9144	12.3400	-14.3611		
10.2800	-33.3712	10.9700	-8.1385	11.6600	-12.1530	12.3500	-13.8583		
10.2900	-31.2373	10.9800	-8.4589	11.6700	-12.8317	12.3600	-10.4264		
10.3000	-30.0872	10.9900	-9.0941	11.6800	-13.0300	12.3700	-12.5309		
10.3100	-30.3527	11.0000	-9.5919	11.6900	-12.4597	12.3800	-13.3665		
10.3200	-32.0841	11.0100	-11.2817	11.7000	-11.7481	12.3900	-14.5690		
10.3300	-34.4932	11.0200	-12.8825	11.7100	-11.6817	12.4000	-13.3425		

APPENDIX C

CYLINDER #1

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-51.1091	4.1650	-37.7194	4.2300	-18.4582	4.2950	-45.2605	4.3600	-52.6346
4.1010	-51.3274	4.1660	-37.1054	4.2310	-19.2913	4.2960	-47.1646	4.3610	-52.4697
4.1020	-51.5111	4.1670	-37.9109	4.2320	-20.2113	4.2970	-47.8717	4.3620	-52.7832
4.1030	-51.5075	4.1680	-37.3250	4.2330	-21.1142	4.2980	-46.5681	4.3630	-52.3232
4.1040	-51.7002	4.1690	-37.2015	4.2340	-21.7405	4.2990	-47.6155	4.3640	-52.5719
4.1050	-52.2557	4.1700	-36.9014	4.2350	-22.7033	4.3000	-47.8534	4.3650	-52.2275
4.1060	-52.1128	4.1710	-37.0065	4.2360	-23.7379	4.3010	-48.0877	4.3660	-52.5645
4.1070	-52.2620	4.1720	-36.9852	4.2370	-24.3227	4.3020	-49.1321	4.3670	-52.5853
4.1080	-52.3849	4.1730	-36.8347	4.2380	-24.7234	4.3030	-48.8065	4.3680	-52.3721
4.1090	-52.8829	4.1740	-36.3232	4.2390	-25.6300	4.3040	-49.6395	4.3690	-51.8070
4.1100	-52.5339	4.1750	-36.8419	4.2400	-26.2565	4.3050	-49.1625	4.3700	-51.8829
4.1110	-52.6876	4.1760	-36.3426	4.2410	-26.8437	4.3060	-50.2050	4.3710	-51.2754
4.1120	-53.1227	4.1770	-36.0518	4.2420	-27.1530	4.3070	-49.8203	4.3720	-51.4227
4.1130	-53.0122	4.1780	-35.6717	4.2430	-27.9447	4.3080	-51.0517	4.3730	-50.1951
4.1140	-53.1821	4.1790	-35.6709	4.2440	-28.4275	4.3090	-50.3887	4.3740	-49.7162
4.1150	-53.5081	4.1800	-35.5316	4.2450	-28.9085	4.3100	-50.5923	4.3750	-48.8603
4.1160	-53.5922	4.1810	-35.1874	4.2460	-29.4048	4.3110	-51.1975	4.3760	-45.6633
4.1170	-53.3648	4.1820	-35.1693	4.2470	-29.7861	4.3120	-51.2553	4.37[illegible]	-54.9187
4.1180	-53.1430	4.1830	-35.1945	4.2480	-30.6855	4.3130	-51.8529	4.3[illegible]	-53.7779
4.1190	-53.3777	4.1840	-35.0908	4.2490	-30.6238	4.3140	-52.4250	4.3[illegible]	-52.6823
4.1200	-53.3463	4.1850	-35.1043	4.2500	-31.0546	4.3150	-51.9679	4.3[illegible]	-52.1367
4.1210	-53.2665	4.1860	-34.9031	4.2510	-31.3847	4.3160	-52.7036	4.3810	-51.9901
4.1220	-53.7894	4.1870	-34.8511	4.2520	-31.6833	4.3170	-52.7558	4.3820	-51.8263
4.1230	-52.9429	4.1880	-34.7143	4.2530	-31.9653	4.3180	-53.7021	4.3830	-50.8907
4.1240	-53.2213	4.1890	-34.4296	4.2540	-32.4262	4.3190	-54.7735	4.3840	-51.0137
4.1250	-53.0172	4.1900	-34.2943	4.2550	-32.7169	4.3200	-55.6623	4.3850	-50.6064
4.1260	-53.1194	4.1910	-34.1938	4.2560	-32.5901	4.3210	-55.6714	4.3860	-50.7284
4.1270	-52.5183	4.1920	-34.1049	4.2570	-33.3475	4.3220	-56.1179	4.3870	-50.5699
4.1280	-52.5651	4.1930	-33.9074	4.2580	-33.6304	4.3230	-56.4994	4.3880	-50.2341
4.1290	-52.7073	4.1940	-33.8076	4.2590	-33.9828	4.3240	-56.4101	4.3890	-51.2701
4.1300	-52.7047	4.1950	-33.5077	4.2600	-33.8555	4.3250	-56.0345	4.3900	-50.5559
4.1310	-52.1073	4.1960	-33.4161	4.2610	-34.7597	4.3260	-56.5296	4.3910	-50.9005
4.1320	-52.0847	4.1970	-33.1742	4.2620	-34.4063	4.3270	-54.8895	4.3920	-50.1575
4.1330	-52.0249	4.1980	-33.0835	4.2630	-35.2757	4.3280	-54.5622	4.3930	-50.3887
4.1340	-52.0858	4.1990	-32.7393	4.2640	-35.3297	4.3290	-55.0187	4.3940	-50.5282
4.1350	-51.7899	4.2000	-32.5550	4.2650	-35.7562	4.3300	-54.0858	4.3950	-50.4790
4.1360	-51.4969	4.2010	-32.3150	4.2660	-35.6617	4.3310	-52.1611	4.3960	-50.6923
4.1370	-50.5759	4.2020	-31.9094	4.2670	-36.2195	4.3320	-51.7909	4.3970	-50.4943
4.1380	-50.9483	4.2030	-31.6941	4.2680	-36.3628	4.3330	-50.9357	4.3980	-50.7590
4.1390	-49.6921	4.2040	-31.3024	4.2690	-36.8132	4.3340	-51.3723	4.3990	-50.5377
4.1400	-50.0938	4.2050	-31.0469	4.2700	-36.7644	4.3350	-51.4297	4.4000	-51.0506
4.1410	-48.4786	4.2060	-30.7084	4.2710	-37.2288	4.3360	-51.5290	4.4010	-51.4344
4.1420	-46.7272	4.2070	-30.3597	4.2720	-37.4231	4.3370	-51.2401	4.4020	-51.6009
4.1430	-46.8795	4.2080	-30.0310	4.2730	-37.6352	4.3380	-51.2493	4.4030	-51.2852
4.1440	-45.5530	4.2090	-29.6032	4.2740	-37.9404	4.3390	-51.2693	4.4040	-51.7543
4.1450	-45.3052	4.2100	-29.2692	4.2750	-38.1460	4.3400	-51.2563	4.4050	-51.5897
4.1460	-44.0707	4.2110	-28.8547	4.2760	-38.4182	4.3410	-51.4701	4.4060	-51.7124
4.1470	-43.5247	4.2120	-28.4192	4.2770	-38.7378	4.3420	-52.4714	4.4070	-50.9609
4.1480	-43.4203	4.2130	-27.8877	4.2780	-39.1709	4.3430	-51.8409	4.4080	-51.2205
4.1490	-44.8937	4.2140	-27.4128	4.2790	-39.2997	4.3440	-52.0355	4.4090	-51.0007
4.1500	-44.4181	4.2150	-26.8332	4.2800	-39.8743	4.3450	-51.5598	4.4100	-51.1101
4.1510	-43.9943	4.2160	-26.2355	4.2810	-39.7286	4.3460	-51.4671	4.4110	-51.1369
4.1520	-42.8474	4.2170	-25.6359	4.2820	-40.2658	4.3470	-50.9638	4.4120	-51.2166
4.1530	-42.6092	4.2180	-24.9102	4.2830	-40.3250	4.3480	-51.0957	4.4130	-51.6175
4.1540	-43.2375	4.2190	-24.1536	4.2840	-40.7758	4.3490	-50.7680	4.4140	-51.6694
4.1550	-42.5967	4.2200	-23.2745	4.2850	-40.9579	4.3500	-50.6363	4.4150	-51.9900
4.1560	-40.7313	4.2210	-22.5304	4.2860	-41.9082	4.3510	-51.3992	4.4160	-51.2383
4.1570	-40.1886	4.2220	-21.8297	4.2870	-42.0049	4.3520	-51.3879	4.4170	-51.3971
4.1580	-39.9152	4.2230	-20.7069	4.2880	-42.6403	4.3530	-51.7067	4.4180	-51.2187
4.1590	-38.5807	4.2240	-19.9996	4.2890	-42.8328	4.3540	-51.6283	4.4190	-51.5291
4.1600	-38.9961	4.2250	-18.9420	4.2900	-44.1472	4.3550	-52.2477	4.4200	-51.6271
4.1610	-38.4211	4.2260	-18.2872	4.2910	-43.5590	4.3560	-52.2896	4.4210	-51.8426
4.1620	-38.6216	4.2270	-17.7825	4.2920	-44.1265	4.3570	-52.5017	4.4220	-51.6317
4.1630	-37.5073	4.2280	-17.6666	4.2930	-44.0454	4.3580	-52.7625	4.4230	-51.9401
4.1640	-38.3491	4.2290	-17.8792	4.2940	-44.7527	4.3590	-52.5741	4.4240	-52.2109

4.4250	-52.3955	4.4940	-52.4889	4.5630	-53.8381	4.6320	-56.9937	4.7010	-59.4568
4.4260	-52.2346	4.4950	-52.7143	4.5640	-53.9937	4.6330	-57.3107	4.7020	-59.4361
4.4270	-52.3021	4.4960	-52.2725	4.5650	-53.9732	4.6340	-56.6661	4.7030	-59.9456
4.4280	-52.4275	4.4970	-52.3627	4.5660	-54.0197	4.6350	-57.1732	4.7040	-59.3196
4.4290	-52.2417	4.4980	-52.6792	4.5670	-53.1439	4.6360	-56.8067	4.7050	-59.7111
4.4300	-52.5035	4.4990	-52.9484	4.5680	-53.9441	4.6370	-56.5547	4.7060	-59.6473
4.4310	-51.9329	4.5000	-53.0105	4.5690	-53.7602	4.6380	-56.8607	4.7070	-58.6552
4.4320	-51.7947	4.5010	-53.5357	4.5700	-53.5593	4.6390	-56.8429	4.7080	-59.3275
4.4330	-51.6120	4.5020	-53.9057	4.5710	-53.8817	4.6400	-56.7913	4.7090	-58.7241
4.4340	-51.8007	4.5030	-53.9159	4.5720	-53.9657	4.6410	-56.6629	4.7100	-58.6343
4.4350	-51.4207	4.5040	-53.8653	4.5730	-54.0352	4.6420	-57.1807	4.7110	-58.5237
4.4360	-51.1404	4.5050	-54.3631	4.5740	-54.4439	4.6430	-56.4860	4.7120	-58.9969
4.4370	-51.3525	4.5060	-54.5635	4.5750	-53.9717	4.6440	-57.3797	4.7130	-58.1631
4.4380	-51.1706	4.5070	-54.7366	4.5760	-54.6307	4.6450	-58.0371	4.7140	-58.6321
4.4390	-51.0917	4.5080	-55.5077	4.5770	-54.3979	4.6460	-57.1667	4.7150	-58.5297
4.4400	-51.0463	4.5090	-55.0480	4.5780	-54.4729	4.6470	-57.3123	4.7160	-58.6911
4.4410	-50.9522	4.5100	-55.4373	4.5790	-54.7295	4.6480	-57.1574	4.7170	-58.1309
4.4420	-51.0227	4.5110	-55.5714	4.5800	-54.9627	4.6490	-57.2182	4.7180	-57.8945
4.4430	-50.6001	4.5120	-56.3607	4.5810	-54.9559	4.6500	-57.4035	4.7190	-58.2547
4.4440	-49.8930	4.5130	-56.3023	4.5820	-54.8989	4.6510	-57.0993	4.7200	-58.3682
4.4450	-50.3133	4.5140	-55.7853	4.5830	-54.8763	4.6520	-57.7177	4.7210	-58.2089
4.4460	-49.4821	4.5150	-55.8633	4.5840	-55.4755	4.6530	-57.5071	4.7220	-58.1592
4.4470	-49.5500	4.5160	-56.6002	4.5850	-55.0855	4.6540	-57.7593	4.7230	-58.7452
4.4480	-48.6997	4.5170	-56.6802	4.5860	-55.9054	4.6550	-57.5887	4.7240	-58.0822
4.4490	-48.4463	4.5180	-55.8328	4.5870	-55.2609	4.6560	-57.4622	4.7250	-59.0789
4.4500	-48.0924	4.5190	-56.0918	4.5880	-55.6656	4.6570	-57.7015	4.7260	-59.7197
4.4510	-47.6351	4.5200	-55.9505	4.5890	-55.9006	4.6580	-57.3987	4.7270	-57.8139
4.4520	-47.8015	4.5210	-55.5506	4.5900	-55.7376	4.6590	-57.0961	4.7280	-59.2220
4.4530	-47.2766	4.5220	-55.5457	4.5910	-55.7643	4.6600	-58.2055	4.7290	-58.9905
4.4540	-47.0321	4.5230	-56.3441	4.5920	-56.4540	4.6610	-57.5870	4.7300	-59.2890
4.4550	-46.9022	4.5240	-55.3617	4.5930	-56.8515	4.6620	-57.8803	4.7310	-59.3064
4.4560	-47.4615	4.5250	-55.3639	4.5940	-57.6509	4.6630	-57.4825	4.7320	-59.7025
4.4570	-47.6977	4.5260	-55.4104	4.5950	-57.4204	4.6640	-57.9327	4.7330	-59.3327
4.4580	-47.6195	4.5270	-55.3997	4.5960	-58.1251	4.6650	-58.3166	4.7340	-59.2627
4.4590	-48.3482	4.5280	-55.1366	4.5970	-57.7306	4.6660	-58.3184	4.7350	-59.7998
4.4600	-48.9003	4.5290	-55.0517	4.5980	-58.0014	4.6670	-58.7983	4.7360	-59.5642
4.4610	-48.6864	4.5300	-54.6500	4.5990	-58.6665	4.6680	-58.2648	4.7370	-60.6020
4.4620	-49.4402	4.5310	-54.4973	4.6000	-57.9627	4.6690	-58.1634	4.7380	-60.3081
4.4630	-49.1983	4.5320	-54.0558	4.6010	-58.0869	4.6700	-59.1956	4.7390	-59.8021
4.4640	-49.7572	4.5330	-53.8879	4.6020	-58.7905	4.6710	-58.3869	4.7400	-60.2375
4.4650	-50.2918	4.5340	-53.9654	4.6030	-58.1204	4.6720	-58.6675	4.7410	-61.1726
4.4660	-50.0885	4.5350	-52.9991	4.6040	-58.9763	4.6730	-58.3924	4.7420	-60.4774
4.4670	-49.7167	4.5360	-53.5084	4.6050	-58.8555	4.6740	-58.8517	4.7430	-59.6931
4.4680	-49.9892	4.5370	-52.9260	4.6060	-58.1276	4.6750	-58.8387	4.7440	-60.1379
4.4690	-49.6071	4.5380	-53.0704	4.6070	-58.2187	4.6760	-58.5224	4.7450	-59.9781
4.4700	-49.7284	4.5390	-52.9973	4.6080	-58.4681	4.6770	-58.2837	4.7460	-59.8051
4.4710	-49.2884	4.5400	-53.0748	4.6090	-58.3081	4.6780	-58.6167	4.7470	-59.4575
4.4720	-49.2656	4.5410	-52.7243	4.6100	-58.1857	4.6790	-58.4101	4.7480	-59.1339
4.4730	-49.2733	4.5420	-52.6944	4.6110	-57.2959	4.6800	-58.6509	4.7490	-59.6689
4.4740	-49.6863	4.5430	-52.7461	4.6120	-57.7343	4.6810	-58.8846	4.7500	-58.8653
4.4750	-49.6968	4.5440	-53.2605	4.6130	-58.2244	4.6820	-58.9918	4.7510	-59.3901
4.4760	-50.3233	4.5450	-52.7912	4.6140	-57.6409	4.6830	-59.1889	4.7520	-58.5900
4.4770	-51.0453	4.5460	-52.8045	4.6150	-57.6581	4.6840	-59.2176	4.7530	-59.0117
4.4780	-51.7388	4.5470	-52.9613	4.6160	-57.6962	4.6850	-59.2054	4.7540	-59.0155
4.4790	-51.8946	4.5480	-52.6747	4.6170	-57.1815	4.6860	-58.8551	4.7550	-58.5710
4.4800	-52.4033	4.5490	-52.9379	4.6180	-57.1951	4.6870	-59.5312	4.7560	-58.5682
4.4810	-53.0665	4.5500	-53.1261	4.6190	-57.5570	4.6880	-58.6568	4.7570	-58.4625
4.4820	-53.5808	4.5510	-53.6563	4.6200	-57.0259	4.6890	-58.6052	4.7580	-58.3513
4.4830	-53.2338	4.5520	-53.1653	4.6210	-57.2246	4.6900	-59.1371	4.7590	-57.9633
4.4840	-53.4903	4.5530	-53.9905	4.6220	-57.4987	4.6910	-60.0446	4.7600	-58.3296
4.4850	-54.4019	4.5540	-54.0569	4.6230	-57.8763	4.6920	-59.4708	4.7610	-57.8358
4.4860	-53.6370	4.5550	-54.2201	4.6240	-57.5393	4.6930	-59.5691	4.7620	-57.5521
4.4870	-53.2411	4.5560	-53.5341	4.6250	-57.2032	4.6940	-60.3549	4.7630	-57.4625
4.4880	-53.3991	4.5570	-54.4437	4.6260	-57.6551	4.6950	-59.8988	4.7640	-58.4072
4.4890	-53.2380	4.5580	-54.1082	4.6270	-57.3613	4.6960	-60.4673	4.7650	-58.2642
4.4900	-53.1167	4.5590	-54.5905	4.6280	-57.5051	4.6970	-59.8102	4.7660	-57.6899
4.4910	-52.7131	4.5600	-54.6887	4.6290	-57.3753	4.6980	-60.3787	4.7670	-58.2649
4.4920	-52.1915	4.5610	-54.6534	4.6300	-57.3789	4.6990	-59.7297	4.7680	-57.6739
4.4930	-52.4437	4.5620	-54.2681	4.6310	-57.7305	4.7000	-59.6312	4.7690	-57.8027

4.7700	-57.8803	4.8390	-58.8385	4.9080	-56.6895	4.9770	-46.1475	5.0460	-57.0561
4.7710	-58.4288	4.8400	-58.3797	4.9090	-56.5751	4.9780	-46.3105	5.0470	-57.7931
4.7720	-58.6023	4.8410	-57.7549	4.9100	-56.7564	4.9790	-46.3566	5.0480	-57.2980
4.7730	-58.8347	4.8420	-57.9401	4.9110	-56.6363	4.9800	-46.1243	5.0490	-57.9356
4.7740	-58.7569	4.8430	-57.8647	4.9120	-56.5611	4.9810	-47.0296	5.0500	-57.5258
4.7750	-59.5456	4.8440	-57.2169	4.9130	-56.9682	4.9820	-46.7369	5.0510	-57.3482
4.7760	-59.1938	4.8450	-57.3711	4.9140	-56.8077	4.9830	-46.3570	5.0520	-56.8623
4.7770	-59.4639	4.8460	-56.9173	4.9150	-57.0480	4.9840	-47.0647	5.0530	-57.7537
4.7780	-58.9833	4.8470	-57.1650	4.9160	-56.8651	4.9850	-47.5258	5.0540	-57.6242
4.7790	-59.7631	4.8480	-56.8859	4.9170	-57.0691	4.9860	-48.0097	5.0550	-57.5639
4.7800	-59.4340	4.8490	-57.0619	4.9180	-57.4881	4.9870	-47.8808	5.0560	-58.2193
4.7810	-60.2053	4.8500	-57.1942	4.9190	-57.3016	4.9880	-47.7767	5.0570	-57.0573
4.7820	-60.0640	4.8510	-56.9380	4.9200	-57.5043	4.9890	-47.7310	5.0580	-57.6894
4.7830	-59.8124	4.8520	-57.7599	4.9210	-57.9030	4.9900	-47.9291	5.0590	-57.2722
4.7840	-59.3776	4.8530	-57.6163	4.9220	-57.8615	4.9910	-48.3922	5.0600	-57.6385
4.7850	-59.7015	4.8540	-57.6740	4.9230	-57.2163	4.9920	-48.4279	5.0610	-57.3029
4.7860	-60.0495	4.8550	-58.1869	4.9240	-57.5751	4.9930	-48.6845	5.0620	-57.4724
4.7870	-59.2181	4.8560	-58.2415	4.9250	-57.5741	4.9940	-48.8764	5.0630	-57.8523
4.7880	-59.4749	4.8570	-58.8960	4.9260	-57.9030	4.9950	-48.9021	5.0640	-57.4518
4.7890	-59.4913	4.8580	-58.9141	4.9270	-58.0308	4.9960	-48.8322	5.0650	-57.1710
4.7900	-59.3445	4.8590	-58.3725	4.9280	-57.5951	4.9970	-49.1874	5.0660	-57.6073
4.7910	-59.5842	4.8600	-59.5201	4.9290	-58.1017	4.9980	-49.4679	5.0670	-57.7868
4.7920	-59.7149	4.8610	-59.5741	4.9300	-58.1918	4.9990	-49.5697	5.0680	-57.5571
4.7930	-59.4065	4.8620	-59.1924	4.9310	-59.1237	5.0000	-49.7851	5.0690	-57.2952
4.7940	-59.5389	4.8630	-58.8226	4.9320	-58.0135	5.0010	-49.8083	5.0700	-56.8086
4.7950	-59.6807	4.8640	-59.6231	4.9330	-59.2056	5.0020	-49.9955	5.0710	-56.9177
4.7960	-59.6595	4.8650	-59.9811	4.9340	-59.0887	5.0030	-50.3281	5.0720	-56.6637
4.7970	-59.1589	4.8660	-60.0243	4.9350	-58.6432	5.0040	-50.4465	5.0730	-56.7367
4.7980	-59.3053	4.8670	-59.8551	4.9360	-58.1490	5.0050	-50.5162	5.0740	-56.4501
4.7990	-58.5582	4.8680	-59.1172	4.9370	-59.4633	5.0060	-50.4992	5.0750	-56.7108
4.8000	-58.6723	4.8690	-60.2155	4.9380	-58.3073	5.0070	-50.3277	5.0760	-57.0157
4.8010	-59.5538	4.8700	-59.2861	4.9390	-59.6751	5.0080	-49.6201	5.0770	-57.1171
4.8020	-59.1322	4.8710	-58.9081	4.9400	-60.1250	5.0090	-50.2921	5.0780	-56.8463
4.8030	-59.3951	4.8720	-58.8511	4.9410	-59.6486	5.0100	-49.5967	5.0790	-56.6722
4.8040	-58.9739	4.8730	-58.7844	4.9420	-60.4539	5.0110	-49.6018	5.0800	-56.9613
4.8050	-58.6388	4.8740	-57.8640	4.9430	-59.5760	5.0120	-49.2325	5.0810	-56.6997
4.8060	-58.7512	4.8750	-58.3962	4.9440	-60.6501	5.0130	-49.0731	5.0820	-57.0499
4.8070	-58.6027	4.8760	-58.6693	4.9450	-60.4192	5.0140	-48.7210	5.0830	-56.8855
4.8080	-59.3195	4.8770	-58.3377	4.9460	-60.1451	5.0150	-48.3291	5.0840	-56.6247
4.8090	-58.0507	4.8780	-57.8894	4.9470	-59.8465	5.0160	-47.9363	5.0850	-55.7214
4.8100	-58.2945	4.8790	-58.0500	4.9480	-59.3982	5.0170	-48.0085	5.0860	-55.5147
4.8110	-58.0874	4.8800	-58.4863	4.9490	-59.1272	5.0180	-48.5170	5.0870	-55.7211
4.8120	-58.2503	4.8810	-58.5515	4.9500	-59.9125	5.0190	-48.0579	5.0880	-55.0676
4.8130	-58.4469	4.8820	-58.1813	4.9510	-58.9117	5.0200	-49.9959	5.0890	-54.4379
4.8140	-58.7309	4.8830	-58.1797	4.9520	-59.5957	5.0210	-50.3143	5.0900	-54.2926
4.8150	-58.0997	4.8840	-58.1627	4.9530	-59.1415	5.0220	-50.4959	5.0910	-54.6402
4.8160	-58.1912	4.8850	-58.2035	4.9540	-59.2007	5.0230	-50.3207	5.0920	-53.5469
4.8170	-57.7161	4.8860	-57.8214	4.9550	-58.5802	5.0240	-49.8622	5.0930	-53.5491
4.8180	-57.9477	4.8870	-57.5749	4.9560	-59.1833	5.0250	-50.1881	5.0940	-53.8568
4.8190	-58.5189	4.8880	-57.1807	4.9570	-58.1622	5.0260	-50.7090	5.0950	-53.4939
4.8200	-58.0501	4.8890	-56.9519	4.9580	-58.6490	5.0270	-51.5155	5.0960	-53.6331
4.8210	-57.9533	4.8900	-56.7761	4.9590	-57.2511	5.0280	-52.2045	5.0970	-54.4224
4.8220	-58.2653	4.8910	-56.6379	4.9600	-57.1383	5.0290	-52.6795	5.0980	-54.1277
4.8230	-57.9477	4.8920	-56.6782	4.9610	-56.9788	5.0300	-52.5149	5.0990	-54.1361
4.8240	-58.0544	4.8930	-56.8837	4.9620	-56.2890	5.0310	-52.4477	5.1000	-54.3671
4.8250	-57.8499	4.8940	-56.6749	4.9630	-55.9785	5.0320	-54.1140	5.1010	-54.4049
4.8260	-57.5545	4.8950	-57.1848	4.9640	-54.4282	5.0330	-53.8391	5.1020	-55.1179
4.8270	-57.8745	4.8960	-56.4683	4.9650	-54.1081	5.0340	-54.0445	5.1030	-54.6073
4.8280	-57.7459	4.8970	-56.4805	4.9660	-53.3607	5.0350	-54.8715	5.1040	-55.1900
4.8290	-58.0151	4.8980	-56.5070	4.9670	-52.5667	5.0360	-54.9001	5.1050	-54.7611
4.8300	-57.9069	4.8990	-55.9732	4.9680	-52.2642	5.0370	-55.1325	5.1060	-54.5255
4.8310	-58.2675	4.9000	-56.2264	4.9690	-51.8082	5.0380	-55.3836	5.1070	-54.4371
4.8320	-58.0190	4.9010	-56.5581	4.9700	-49.8451	5.0390	-56.3621	5.1080	-53.5764
4.8330	-58.3790	4.9020	-56.2694	4.9710	-49.7247	5.0400	-56.0185	5.1090	-52.9662
4.8340	-58.1470	4.9030	-56.7269	4.9720	-48.7629	5.0410	-56.6015	5.1100	-52.0543
4.8350	-57.8855	4.9040	-56.8874	4.9730	-48.5400	5.0420	-56.7193	5.1110	-51.2153
4.8360	-58.6358	4.9050	-56.4592	4.9740	-47.0302	5.0430	-56.3869	5.1120	-50.0569
4.8370	-58.1418	4.9060	-56.7315	4.9750	-47.0341	5.0440	-57.5043	5.1130	-48.8563
4.8380	-57.9207	4.9070	-56.8999	4.9760	-46.2138	5.0450	-57.1841	5.1140	-48.4306

5.1150	-46.6884	5.1840	-59.0795	5.2530	-56.1598
5.1160	-46.9511	5.1850	-58.7074	5.2540	-56.5127
5.1170	-45.7871	5.1860	-59.0255	5.2550	-57.0057
5.1180	-44.2883	5.1870	-59.7114	5.2560	-56.9313
5.1190	-43.5482	5.1880	-59.5127	5.2570	-56.5323
5.1200	-43.4510	5.1890	-59.7020	5.2580	-57.0758
5.1210	-41.9920	5.1900	-59.6829	5.2590	-57.4154
5.1220	-42.1774	5.1910	-60.0023	5.2600	-57.5506
5.1230	-41.0038	5.1920	-59.3819	5.2610	-57.7977
5.1240	-41.5216	5.1930	-59.3475	5.2620	-57.6189
5.1250	-40.5839	5.1940	-60.0860	5.2630	-57.2979
5.1260	-41.4645	5.1950	-60.1412	5.2640	-57.4751
5.1270	-41.0501	5.1960	-60.4969	5.2650	-57.3949
5.1280	-41.7976	5.1970	-59.0401	5.2660	-57.4606
5.1290	-41.7098	5.1980	-60.1746	5.2670	-57.8436
5.1300	-41.6284	5.1990	-60.5557	5.2680	-57.7901
5.1310	-41.7596	5.2000	-59.8545	5.2690	-57.8590
5.1320	-43.0348	5.2010	-60.6047	5.2700	-57.7964
5.1330	-43.6882	5.2020	-61.0369	5.2710	-57.2972
5.1340	-44.4649	5.2030	-60.7757	5.2720	-58.0575
5.1350	-45.2239	5.2040	-59.9005	5.2730	-58.2553
5.1360	-46.6346	5.2050	-60.9155	5.2740	-58.1061
5.1370	-47.2518	5.2060	-60.9693	5.2750	-57.5276
5.1380	-47.5901	5.2070	-61.0297	5.2760	-57.9003
5.1390	-49.2817	5.2080	-60.8289	5.2770	-58.0973
5.1400	-49.4495	5.2090	-60.8954	5.2780	-58.2685
5.1410	-50.0679	5.2100	-61.1613	5.2790	-58.0874
5.1420	-50.3951	5.2110	-61.0491	5.2800	-58.7566
5.1430	-52.3261	5.2120	-60.7727	5.2810	-58.7092
5.1440	-53.2690	5.2130	-60.8575	5.2820	-59.1576
5.1450	-53.3693	5.2140	-60.2396	5.2830	-58.2664
5.1460	-53.6634	5.2150	-61.3684	5.2840	-58.5383
5.1470	-53.9118	5.2160	-60.9179	5.2850	-59.2554
5.1480	-54.6375	5.2170	-61.0939	5.2860	-58.2834
5.1490	-54.9731	5.2180	-60.6796	5.2870	-58.6017
5.1500	-54.9802	5.2190	-61.2533	5.2880	-59.2395
5.1510	-54.9787	5.2200	-61.0137	5.2890	-59.0995
5.1520	-55.5328	5.2210	-61.0729	5.2900	-59.9368
5.1530	-55.7106	5.2220	-60.8463	5.2910	-60.0331
5.1540	-56.2181	5.2230	-61.3326	5.2920	-60.1513
5.1550	-56.1963	5.2240	-60.8924	5.2930	-59.7389
5.1560	-56.1792	5.2250	-61.3625	5.2940	-60.2427
5.1570	-56.2478	5.2260	-61.2283	5.2950	-60.1061
5.1580	-55.7949	5.2270	-60.8975	5.2960	-59.2395
5.1590	-55.8237	5.2280	-60.8428	5.2970	-59.7984
5.1600	-55.8418	5.2290	-60.5583	5.2980	-60.0623
5.1610	-56.0715	5.2300	-60.2571	5.2990	-59.2365
5.1620	-56.0639	5.2310	-59.9323	5.3000	-60.1982
5.1630	-56.5111	5.2320	-59.9363		
5.1640	-56.2675	5.2330	-59.8673		
5.1650	-56.5234	5.2340	-59.6123		
5.1660	-56.5333	5.2350	-59.7064		
5.1670	-56.7067	5.2360	-59.0943		
5.1680	-56.8778	5.2370	-59.6008		
5.1690	-56.8851	5.2380	-58.6743		
5.1700	-57.0341	5.2390	-58.3809		
5.1710	-56.9073	5.2400	-58.5830		
5.1720	-56.8385	5.2410	-57.8897		
5.1730	-57.2615	5.2420	-57.7636		
5.1740	-56.9170	5.2430	-57.6897		
5.1750	-57.5855	5.2440	-56.7220		
5.1760	-57.9160	5.2450	-55.7483		
5.1770	-57.9355	5.2460	-55.6955		
5.1780	-58.2203	5.2470	-55.6835		
5.1790	-57.8503	5.2480	-55.1737		
5.1800	-58.6584	5.2490	-55.3711		
5.1810	-59.1552	5.2500	-55.0199		
5.1820	-58.8373	5.2510	-55.8397		
5.1830	-59.3887	5.2520	-55.9477		

CYLINDER #2

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-36.9665	4.1640	-31.6944	4.2280	-9.9146	4.2920	-31.6475	4.3560	-50.0977
4.1010	-36.6938	4.1650	-31.3868	4.2290	-9.6094	4.2930	-31.7434	4.3570	-50.4927
4.1020	-37.1688	4.1660	-31.1389	4.2300	-9.7154	4.2940	-31.9812	4.3580	-50.5709
4.1030	-37.0869	4.1670	-31.0054	4.2310	-10.2330	4.2950	-32.2368	4.3590	-50.3833
4.1040	-37.1563	4.1680	-31.2676	4.2320	-11.0176	4.2960	-32.5144	4.3600	-50.3373
4.1050	-37.3341	4.1690	-30.6664	4.2330	-11.8970	4.2970	-32.7104	4.3610	-49.9718
4.1060	-37.3033	4.1700	-30.4813	4.2340	-12.7012	4.2980	-32.9952	4.3620	-50.0305
4.1070	-37.2020	4.1710	-30.3317	4.2350	-13.7779	4.2990	-33.2715	4.3630	-50.7291
4.1080	-37.4639	4.1720	-30.1973	4.2360	-14.6294	4.3000	-33.5681	4.3640	-50.4429
4.1090	-37.4905	4.1730	-30.0006	4.2370	-15.4466	4.3010	-33.7720	4.3650	-50.3473
4.1100	-37.5216	4.1740	-29.8776	4.2380	-16.0223	4.3020	-34.1225	4.3660	-50.5335
4.1110	-37.7754	4.1750	-29.6963	4.2390	-16.9277	4.3030	-34.3386	4.3670	-50.7331
4.1120	-37.8499	4.1760	-29.2471	4.2400	-17.6817	4.3040	-34.4783	4.3680	-50.4189
4.1130	-38.1700	4.1770	-29.3928	4.2410	-18.2849	4.3050	-34.7655	4.3690	-50.4229
4.1140	-37.8224	4.1780	-29.3154	4.2420	-18.4517	4.3060	-35.1214	4.3700	-50.5453
4.1150	-38.3293	4.1790	-29.1274	4.2430	-19.4024	4.3070	-35.3660	4.3710	-50.2841
4.1160	-38.4282	4.1800	-29.0135	4.2440	-19.8414	4.3080	-35.7227	4.3720	-50.5221
4.1170	-38.1635	4.1810	-28.8382	4.2450	-20.6726	4.3090	-3[illegible]3274	4.3730	-49.8097
4.1180	-38.5244	4.1820	-28.7080	4.2460	-20.7554	4.3100	-3[illegible]311	4.3740	-49.6574
4.1190	-38.4891	4.1830	-28.4916	4.2470	-21.1416	4.3110	-3[illegible]123	4.3750	-49.1604
4.1200	-38.2024	4.1840	-28.4766	4.2480	-21.6934	4.3120	-3[illegible]363	4.3760	-49.0787
4.1210	-38.1252	4.1850	-28.1844	4.2490	-21.9650	4.3130	-36.7475	4.3770	-48.9011
4.1220	-38.1448	4.1860	-28.0248	4.2500	-22.7661	4.3140	-37.0409	4.3780	-48.3242
4.1230	-38.1725	4.1870	-27.8539	4.2510	-22.6147	4.3150	-37.1086	4.3790	-48.7672
4.1240	-38.4406	4.1880	-27.6506	4.2520	-22.9537	4.3160	-37.1125	4.3800	-47.6028
4.1250	-38.2243	4.1890	-27.5160	4.2530	-23.7222	4.3170	-37.4897	4.3810	-46.9614
4.1260	-37.9344	4.1900	-27.2573	4.2540	-23.6311	4.3180	-37.5492	4.3820	-47.4930
4.1270	-38.0504	4.1910	-27.0808	4.2550	-23.8916	4.3190	-38.0707	4.3830	-46.1361
4.1280	-37.8128	4.1920	-26.9464	4.2560	-23.5826	4.3200	-37.8903	4.3840	-45.8557
4.1290	-38.1771	4.1930	-26.7382	4.2570	-24.7903	4.3210	-38.2731	4.3850	-44.8961
4.1300	-38.0579	4.1940	-26.5900	4.2580	-24.2684	4.3220	-38.4287	4.3860	-44.9841
4.1310	-37.7338	4.1950	-26.3522	4.2590	-24.8877	4.3230	-38.4925	4.3870	-43.2582
4.1320	-37.8195	4.1960	-26.2266	4.2600	-24.7637	4.3240	-39.4797	4.3880	-42.9521
4.1330	-37.7282	4.1970	-26.0002	4.2610	-25.6169	4.3250	-38.8166	4.3890	-42.3398
4.1340	-37.7289	4.1980	-25.8323	4.2620	-25.2185	4.3260	-39.0257	4.3900	-42.4569
4.1350	-37.4354	4.1990	-25.5781	4.2630	-25.7257	4.3270	-39.6052	4.3910	-41.5699
4.1360	-37.4065	4.2000	-25.3926	4.2640	-25.9337	4.3280	-41.4184	4.3920	-41.8181
4.1370	-37.4712	4.2010	-25.1482	4.2650	-26.1256	4.3290	-40.3453	4.3930	-40.7795
4.1380	-37.3913	4.2020	-24.8914	4.2660	-26.1281	4.3300	-42.3712	4.3940	-41.4661
4.1390	-37.0035	4.2030	-24.6341	4.2670	-26.4966	4.3310	-41.0065	4.3950	-41.0715
4.1400	-36.4545	4.2040	-24.4358	4.2680	-26.6232	4.3320	-41.5785	4.3960	-40.7634
4.1410	-36.2869	4.2050	-24.1828	4.2690	-26.8418	4.3330	-43.2587	4.3970	-40.9872
4.1420	-35.9808	4.2060	-23.8447	4.2700	-26.9449	4.3340	-42.7017	4.3980	-40.3148
4.1430	-35.7280	4.2070	-23.5143	4.2710	-27.2351	4.3350	-43.4637	4.3990	-40.5640
4.1440	-35.5049	4.2080	-23.1830	4.2720	-27.4061	4.3360	-43.9130	4.4000	-40.6677
4.1450	-35.3180	4.2090	-22.7908	4.2730	-27.6175	4.3370	-45.6026	4.4010	-41.0979
4.1460	-35.0937	4.2100	-22.4241	4.2740	-27.7960	4.3380	-45.1485	4.4020	-41.3962
4.1470	-34.8486	4.2110	-22.0609	4.2750	-28.0043	4.3390	-45.8997	4.4030	-41.5407
4.1480	-34.7534	4.2120	-21.5744	4.2760	-28.1112	4.3400	-47.0941	4.4040	-42.5388
4.1490	-34.7405	4.2130	-21.1384	4.2770	-28.3891	4.3410	-46.5949	4.4050	-42.3028
4.1500	-34.8106	4.2140	-20.6404	4.2780	-28.5371	4.3420	-47.6366	4.4060	-42.7078
4.1510	-34.4005	4.2150	-20.0910	4.2790	-28.7680	4.3430	-47.9302	4.4070	-43.8430
4.1520	-34.0667	4.2160	-19.5315	4.2800	-29.0002	4.3440	-49.1167	4.4080	-43.3207
4.1530	-33.7894	4.2170	-19.0054	4.2810	-29.0737	4.3450	-48.9275	4.4090	-43.5739
4.1540	-33.4685	4.2180	-18.2844	4.2820	-29.3344	4.3460	-48.7572	4.4100	-44.1742
4.1550	-33.2207	4.2190	-17.6092	4.2830	-29.5239	4.3470	-48.9569	4.4110	-45.4245
4.1560	-33.2968	4.2200	-16.8550	4.2840	-29.7667	4.3480	-49.3302	4.4120	-45.7632
4.1570	-32.7801	4.2210	-16.1145	4.2850	-29.8790	4.3490	-49.4855	4.4130	-47.7853
4.1580	-32.5726	4.2220	-15.3455	4.2860	-30.2757	4.3500	-49.4796	4.4140	-46.4502
4.1590	-32.1094	4.2230	-14.2900	4.2870	-30.3972	4.3510	-49.7777	4.4150	-46.8405
4.1600	-32.2701	4.2240	-13.5832	4.2880	-30.7066	4.3520	-50.4165	4.4160	-47.4565
4.1610	-32.1394	4.2250	-12.3549	4.2890	-30.7955	4.3530	-49.8359	4.4170	-49.7824
4.1620	-32.3187	4.2260	-11.4101	4.2900	-31.1771	4.3540	-50.8827	4.4180	-48.6603
4.1630	-31.3154	4.2270	-10.5086	4.2910	-31.2768	4.3550	-50.4997	4.4190	-49.0516

4.4200	-49.3215	4.4890	-32.5893	4.5580	-54.0187	4.6270	-53.6791	4.6960	-57.3236
4.4210	-50.8199	4.4900	-32.7403	4.5590	-53.6543	4.6280	-53.2188	4.6970	-56.8972
4.4220	-51.0739	4.4910	-33.1022	4.5600	-53.3944	4.6290	-53.0789	4.6980	-57.6193
4.4230	-51.3697	4.4920	-33.3789	4.5610	-53.3966	4.6300	-52.9073	4.6990	-56.9947
4.4240	-51.6721	4.4930	-34.1555	4.5620	-52.3449	4.6310	-53.4851	4.7000	-56.3007
4.4250	-51.5999	4.4940	-34.5023	4.5630	-52.0781	4.6320	-52.3845	4.7010	-56.9067
4.4260	-52.2427	4.4950	-35.8435	4.5640	-51.3715	4.6330	-52.6585	4.7020	-57.1755
4.4270	-52.5745	4.4960	-35.9534	4.5650	-51.3011	4.6340	-52.6325	4.7030	-57.1367
4.4280	-52.6357	4.4970	-37.5285	4.5660	-51.1326	4.6350	-52.3441	4.7040	-56.6100
4.4290	-53.0776	4.4980	-38.2924	4.5670	-50.4768	4.6360	-51.7545	4.7050	-56.8388
4.4300	-52.3938	4.4990	-39.9924	4.5680	-50.2773	4.6370	-51.7298	4.7060	-56.3203
4.4310	-52.0986	4.5000	-42.2498	4.5690	-49.4524	4.6380	-51.5791	4.7070	-56.3444
4.4320	-52.7014	4.5010	-44.9315	4.5700	-49.8619	4.6390	-51.8521	4.7080	-56.5081
4.4330	-52.3027	4.5020	-46.6817	4.5710	-49.5786	4.6400	-51.3693	4.7090	-56.0575
4.4340	-51.9010	4.5030	-47.8690	4.5720	-49.3491	4.6410	-51.3569	4.7100	-56.2788
4.4350	-52.3144	4.5040	-50.0634	4.5730	-48.8795	4.6420	-50.8195	4.7110	-56.0109
4.4360	-51.8081	4.5050	-48.8019	4.5740	-49.4216	4.6430	-50.7856	4.7120	-55.3018
4.4370	-51.2191	4.5060	-47.4827	4.5750	-48.9681	4.6440	-50.6541	4.7130	-55.6269
4.4380	-50.8747	4.5070	-46.1501	4.5760	-49.3857	4.6450	-50.8366	4.7140	-55.0495
4.4390	-49.8569	4.5080	-44.6043	4.5770	-49.0477	4.6460	-50.5283	4.7150	-55.1669
4.4400	-49.1301	4.5090	-45.2113	4.5780	-49.5949	4.6470	-51.2505	4.7160	-55.1947
4.4410	-49.8520	4.5100	-42.7263	4.5790	-49.3816	4.6480	-50.5253	4.7170	-54.8344
4.4420	-48.5846	4.5110	-41.9725	4.5800	-50.2111	4.6490	-50.8555	4.7180	-54.7369
4.4430	-48.0899	4.5120	-41.7850	4.5810	-49.6269	4.6500	-50.7493	4.7190	-54.7083
4.4440	-47.7687	4.5130	-42.5944	4.5820	-50.3967	4.6510	-51.0397	4.7200	-54.5658
4.4450	-46.5759	4.5140	-41.0542	4.5830	-50.4365	4.6520	-50.9857	4.7210	-54.2060
4.4460	-46.6763	4.5150	-41.6845	4.5840	-50.1091	4.6530	-50.8849	4.7220	-54.3177
4.4470	-45.2667	4.5160	-40.4852	4.5850	-51.1264	4.6540	-51.0550	4.7230	-54.0744
4.4480	-45.4270	4.5170	-40.5417	4.5860	-50.5038	4.6550	-50.9449	4.7240	-53.3952
4.4490	-44.8007	4.5180	-41.3603	4.5870	-51.1618	4.6560	-51.0793	4.7250	-53.2677
4.4500	-43.6549	4.5190	-40.7590	4.5880	-51.0869	4.6570	-51.4059	4.7260	-53.0292
4.4510	-43.0546	4.5200	-41.2072	4.5890	-52.0010	4.6580	-51.2538	4.7270	-53.2648
4.4520	-42.2265	4.5210	-41.1055	4.5900	-50.6898	4.6590	-51.1986	4.7280	-53.1667
4.4530	-41.7762	4.5220	-41.2150	4.5910	-51.2504	4.6600	-51.2818	4.7290	-52.9009
4.4540	-40.9927	4.5230	-42.4281	4.5920	-51.5685	4.6610	-51.5989	4.7300	-52.4897
4.4550	-40.3871	4.5240	-42.1751	4.5930	-51.3443	4.6620	-51.3762	4.7310	-52.2285
4.4560	-40.1333	4.5250	-42.2357	4.5940	-51.5627	4.6630	-51.3485	4.7320	-52.2171
4.4570	-39.5334	4.5260	-42.9925	4.5950	-51.7149	4.6640	-50.9671	4.7330	-51.8886
4.4580	-38.6044	4.5270	-43.8730	4.5960	-52.4337	4.6650	-51.5682	4.7340	-51.9611
4.4590	-38.3382	4.5280	-44.0850	4.5970	-52.4177	4.6660	-51.6633	4.7350	-52.1362
4.4600	-37.4555	4.5290	-44.5478	4.5980	-52.7021	4.6670	-52.2144	4.7360	-51.8043
4.4610	-37.0867	4.5300	-45.4155	4.5990	-53.1037	4.6680	-51.8493	4.7370	-51.6111
4.4620	-37.1232	4.5310	-46.3555	4.6000	-54.2667	4.6690	-51.9164	4.7380	-51.1931
4.4630	-36.1363	4.5320	-47.2003	4.6010	-53.0943	4.6700	-52.0911	4.7390	-52.4803
4.4640	-36.3051	4.5330	-47.4048	4.6020	-53.5947	4.6710	-52.8755	4.7400	-51.9081
4.4650	-35.2711	4.5340	-47.9569	4.6030	-53.6057	4.6720	-52.6482	4.7410	-52.0070
4.4660	-35.8534	4.5350	-49.5735	4.6040	-54.4995	4.6730	-53.7809	4.7420	-52.3601
4.4670	-34.6658	4.5360	-49.9232	4.6050	-54.3161	4.6740	-53.0359	4.7430	-51.9526
4.4680	-34.6776	4.5370	-51.3446	4.6060	-54.2972	4.6750	-54.3031	4.7440	-52.8085
4.4690	-34.9949	4.5380	-51.8793	4.6070	-54.5588	4.6760	-53.9935	4.7450	-51.9269
4.4700	-33.9682	4.5390	-52.8005	4.6080	-54.9011	4.6770	-54.5815	4.7460	-51.8530
4.4710	-34.1003	4.5400	-54.1507	4.6090	-55.7295	4.6780	-54.9179	4.7470	-51.3835
4.4720	-33.8813	4.5410	-54.6236	4.6100	-55.9280	4.6790	-54.3089	4.7480	-51.9898
4.4730	-33.3965	4.5420	-55.3369	4.6110	-55.4937	4.6800	-54.3010	4.7490	-51.8173
4.4740	-33.6888	4.5430	-56.1942	4.6120	-55.0348	4.6810	-55.0945	4.7500	-52.2678
4.4750	-33.0475	4.5440	-55.8620	4.6130	-55.3945	4.6820	-55.1347	4.7510	-52.0605
4.4760	-33.0511	4.5450	-57.1236	4.6140	-55.2649	4.6830	-55.8391	4.7520	-52.3527
4.4770	-32.6305	4.5460	-56.1247	4.6150	-55.6349	4.6840	-56.1757	4.7530	-52.3982
4.4780	-32.5096	4.5470	-56.3943	4.6160	-55.5082	4.6850	-55.6571	4.7540	-53.0095
4.4790	-32.3290	4.5480	-57.7835	4.6170	-54.8622	4.6860	-56.0690	4.7550	-53.3542
4.4800	-32.3729	4.5490	-56.5847	4.6180	-55.0019	4.6870	-56.2641	4.7560	-53.8982
4.4810	-32.0501	4.5500	-56.6844	4.6190	-55.2684	4.6880	-55.8485	4.7570	-54.0625
4.4820	-32.4670	4.5510	-56.1214	4.6200	-55.0321	4.6890	-56.0664	4.7580	-54.7491
4.4830	-32.0472	4.5520	-57.1709	4.6210	-54.7019	4.6900	-55.9421	4.7590	-54.5907
4.4840	-32.3736	4.5530	-56.4237	4.6220	-54.9517	4.6910	-56.5243	4.7600	-54.9519
4.4850	-32.2033	4.5540	-56.0975	4.6230	-54.3684	4.6920	-56.5298	4.7610	-54.8469
4.4860	-32.1470	4.5550	-54.9561	4.6240	-54.1181	4.6930	-57.1157	4.7620	-55.4712
4.4870	-32.2883	4.5560	-55.1655	4.6250	-54.0763	4.6940	-56.9637	4.7630	-54.4312
4.4880	-32.3813	4.5570	-55.1247	4.6260	-53.6690	4.6950	-56.3837	4.7640	-55.0263

4.7650	-54.8386	4.8340	-52.8525	4.9030	-54.9699	4.9720	-42.6275	5.0410	-52.2240
4.7660	-55.0803	4.8350	-52.9911	4.9040	-54.5279	4.9730	-41.7229	5.0420	-52.7803
4.7670	-55.8009	4.8360	-53.5894	4.9050	-53.8557	4.9740	-41.1824	5.0430	-52.6594
4.7680	-54.7755	4.8370	-53.7953	4.9060	-53.9769	4.9750	-40.1881	5.0440	-52.2217
4.7690	-54.7305	4.8380	-54.0807	4.9070	-53.5267	4.9760	-40.5777	5.0450	-52.2257
4.7700	-55.5899	4.8390	-54.4068	4.9080	-53.3245	4.9770	-40.2520	5.0460	-52.2543
4.7710	-55.9531	4.8400	-54.4831	4.9090	-53.0427	4.9780	-40.2297	5.0470	-52.4770
4.7720	-56.8284	4.8410	-54.3553	4.9100	-52.8979	4.9790	-40.5694	5.0480	-52.2307
4.7730	-56.2100	4.8420	-54.6352	4.9110	-52.8067	4.9800	-40.8885	5.0490	-51.7079
4.7740	-56.3248	4.8430	-55.0716	4.9120	-52.4095	4.9810	-40.7027	5.0500	-51.7971
4.7750	-57.5981	4.8440	-55.2326	4.9130	-52.4319	4.9820	-41.1889	5.0510	-51.7233
4.7760	-56.8543	4.8450	-55.2998	4.9140	-52.5646	4.9830	-41.4932	5.0520	-51.3093
4.7770	-57.6436	4.8460	-55.9568	4.9150	-52.3915	4.9840	-41.6255	5.0530	-50.8006
4.7780	-56.7424	4.8470	-55.9006	4.9160	-52.2645	4.9850	-41.7189	5.0540	-51.0782
4.7790	-56.6560	4.8480	-56.0389	4.9170	-52.0515	4.9860	-42.2995	5.0550	-50.8197
4.7800	-57.3126	4.8490	-56.5747	4.9180	-51.6743	4.9870	-42.8324	5.0560	-50.5268
4.7810	-57.7005	4.8500	-56.9605	4.9190	-51.7307	4.9880	-43.4393	5.0570	-50.3136
4.7820	-57.4391	4.8510	-56.9269	4.9200	-51.3247	4.9890	-43.4653	5.0580	-49.6258
4.7830	-57.4805	4.8520	-57.3561	4.9210	-51.2978	4.9900	-43.7686	5.0590	-49.9111
4.7840	-56.8277	4.8530	-57.5415	4.9220	-51.3647	4.9910	-43.6893	5.0600	-49.4785
4.7850	-57.3175	4.8540	-58.0509	4.9230	-51.3423	4.9920	-44.0109	5.0610	-49.4242
4.7860	-57.5389	4.8550	-57.6675	4.9240	-51.2090	4.9930	-44.8740	5.0620	-49.0131
4.7870	-56.5971	4.8560	-58.0929	4.9250	-51.2107	4.9940	-45.2546	5.0630	-49.1583
4.7880	-56.7194	4.8570	-59.0477	4.9260	-50.8741	4.9950	-45.2125	5.0640	-48.8295
4.7890	-56.4955	4.8580	-58.5437	4.9270	-50.9177	4.9960	-44.7852	5.0650	-48.3271
4.7900	-56.9074	4.8590	-58.6922	4.9280	-51.5997	4.9970	-44.9097	5.0660	-48.7151
4.7910	-56.6743	4.8600	-57.6680	4.9290	-50.9890	4.9980	-45.3298	5.0670	-47.8015
4.7920	-56.5411	4.8610	-58.4128	4.9300	-50.5621	4.9990	-45.4999	5.0680	-47.4433
4.7930	-56.0555	4.8620	-58.6242	4.9310	-51.1485	5.0000	-45.3099	5.0690	-48.1845
4.7940	-56.3868	4.8630	-58.4221	4.9320	-51.7707	5.0010	-45.9994	5.0700	-47.8119
4.7950	-55.8351	4.8640	-58.3549	4.9330	-51.1207	5.0020	-45.9996	5.0710	-46.5323
4.7960	-56.1263	4.8650	-59.3080	4.9340	-51.8002	5.0030	-45.8802	5.0720	-46.5666
4.7970	-55.6863	4.8660	-59.0042	4.9350	-51.7292	5.0040	-46.1275	5.0730	-46.8767
4.7980	-55.8215	4.8670	-59.7232	4.9360	-52.1974	5.0050	-46.4445	5.0740	-45.1100
4.7990	-55.4341	4.8680	-59.1237	4.9370	-52.5080	5.0060	-45.9291	5.0750	-44.4075
4.8000	-55.2731	4.8690	-59.4730	4.9380	-53.2571	5.0070	-46.0051	5.0760	-44.1482
4.8010	-54.8710	4.8700	-59.4175	4.9390	-53.8547	5.0080	-46.9867	5.0770	-43.6746
4.8020	-54.8134	4.8710	-59.2599	4.9400	-54.4161	5.0090	-47.7243	5.0780	-43.5199
4.8030	-54.5528	4.8720	-59.5322	4.9410	-54.9037	5.0100	-47.6818	5.0790	-43.0181
4.8040	-54.4197	4.8730	-58.9859	4.9420	-55.1980	5.0110	-47.5759	5.0800	-42.9346
4.8050	-54.3055	4.8740	-58.9127	4.9430	-55.3211	5.0120	-47.7526	5.0810	-42.3536
4.8060	-54.2244	4.8750	-59.1350	4.9440	-55.9522	5.0130	-47.6017	5.0820	-42.2784
4.8070	-54.2766	4.8760	-58.9011	4.9450	-56.3715	5.0140	-48.0332	5.0830	-41.8995
4.8080	-53.9769	4.8770	-58.7945	4.9460	-56.0690	5.0150	-48.0582	5.0840	-41.6694
4.8090	-53.9930	4.8780	-58.8024	4.9470	-56.5976	5.0160	-48.1699	5.0850	-41.2104
4.8100	-54.0317	4.8790	-58.5980	4.9480	-56.8959	5.0170	-47.9691	5.0860	-40.9609
4.8110	-54.0978	4.8800	-58.7653	4.9490	-56.5663	5.0180	-49.4691	5.0870	-40.1744
4.8120	-53.8579	4.8810	-58.0792	4.9500	-56.4677	5.0190	-48.0468	5.0880	-39.4629
4.8130	-54.0671	4.8820	-58.7301	4.9510	-56.5221	5.0200	-48.5581	5.0890	-39.2433
4.8140	-53.7375	4.8830	-58.3218	4.9520	-56.7459	5.0210	-49.0454	5.0900	-38.6973
4.8150	-53.4199	4.8840	-57.9618	4.9530	-56.5039	5.0220	-51.0462	5.0910	-38.3582
4.8160	-53.4691	4.8850	-58.2649	4.9540	-55.6525	5.0230	-48.6565	5.0920	-38.1632
4.8170	-53.5045	4.8860	-58.4456	4.9550	-55.5695	5.0240	-50.8504	5.0930	-37.6423
4.8180	-53.1311	4.8870	-57.9327	4.9560	-55.4211	5.0250	-50.7050	5.0940	-36.9520
4.8190	-53.3168	4.8880	-57.8586	4.9570	-55.4513	5.0260	-49.9161	5.0950	-36.5499
4.8200	-53.6041	4.8890	-57.1416	4.9580	-54.3824	5.0270	-50.5521	5.0960	-36.6557
4.8210	-53.1515	4.8900	-57.4639	4.9590	-53.6701	5.0280	-50.4884	5.0970	-36.4026
4.8220	-53.1985	4.8910	-57.3699	4.9600	-52.8751	5.0290	-50.8295	5.0980	-35.8764
4.8230	-53.1373	4.8920	-56.8109	4.9610	-52.6286	5.0300	-51.4073	5.0990	-35.6815
4.8240	-53.0101	4.8930	-56.3179	4.9620	-51.8649	5.0310	-51.8476	5.1000	-35.5213
4.8250	-53.1240	4.8940	-56.8478	4.9630	-51.1848	5.0320	-52.2120	5.1010	-35.5546
4.8260	-52.9685	4.8950	-55.9920	4.9640	-50.3776	5.0330	-52.6863	5.1020	-35.0773
4.8270	-53.3204	4.8960	-55.7022	4.9650	-48.9213	5.0340	-51.8407	5.1030	-34.8968
4.8280	-52.8503	4.8970	-55.6777	4.9660	-48.9477	5.0350	-51.8989	5.1040	-34.6015
4.8290	-53.0473	4.8980	-55.6792	4.9670	-47.7309	5.0360	-51.6719	5.1050	-34.6162
4.8300	-53.0967	4.8990	-55.0097	4.9680	-46.2769	5.0370	-52.4206	5.1060	-34.3005
4.8310	-53.1516	4.9000	-54.9370	4.9690	-45.2252	5.0380	-51.9777	5.1070	-33.6690
4.8320	-52.6455	4.9010	-55.1640	4.9700	-44.5621	5.0390	-53.4081	5.1080	-33.4708
4.8330	-53.0930	4.9020	-54.9872	4.9710	-43.7615	5.0400	-53.3461	5.1090	-33.1100

5.1100	-32.8134	5.1790	-48.3868	5.2480	-55.8380
5.1110	-32.1752	5.1800	-48.9477	5.2490	-55.9398
5.1120	-32.2616	5.1810	-49.3137	5.2500	-56.0892
5.1130	-31.8952	5.1820	-50.3895	5.2510	-56.0413
5.1140	-31.3987	5.1830	-51.0161	5.2520	-56.0847
5.1150	-31.1726	5.1840	-50.2583	5.2530	-56.0708
5.1160	-30.4182	5.1850	-50.6372	5.2540	-56.7609
5.1170	-30.4469	5.1860	-51.2281	5.2550	-56.4233
5.1180	-30.0490	5.1870	-51.7991	5.2560	-55.8561
5.1190	-29.7155	5.1880	-51.9065	5.2570	-56.6813
5.1200	-29.4067	5.1890	-51.7427	5.2580	-56.5445
5.1210	-29.4661	5.1900	-52.6933	5.2590	-56.3793
5.1220	-29.1665	5.1910	-52.9995	5.2600	-56.0671
5.1230	-28.0370	5.1920	-52.8222	5.2610	-56.1675
5.1240	-28.2545	5.1930	-54.0533	5.2620	-56.3131
5.1250	-27.5944	5.1940	-54.4610	5.2630	-55.9427
5.1260	-28.4455	5.1950	-54.3646	5.2640	-55.8973
5.1270	-27.4992	5.1960	-53.5150	5.2650	-56.5392
5.1280	-28.5136	5.1970	-55.3001	5.2660	-56.1894
5.1290	-28.0924	5.1980	-55.2480	5.2670	-56.6709
5.1300	-27.8763	5.1990	-55.8128	5.2680	-56.4977
5.1310	-28.2238	5.2000	-56.3180	5.2690	-56.6699
5.1320	-29.0276	5.2010	-55.8593	5.2700	-56.8358
5.1330	-29.4456	5.2020	-56.1841	5.2710	-57.3194
5.1340	-29.8964	5.2030	-56.2969	5.2720	-57.2011
5.1350	-30.3157	5.2040	-56.5952	5.2730	-57.3053
5.1360	-30.8254	5.2050	-56.8737	5.2740	-57.5829
5.1370	-31.3553	5.2060	-56.7607	5.2750	-57.6015
5.1380	-31.9643	5.2070	-57.4344	5.2760	-57.3939
5.1390	-32.3726	5.2080	-57.7804	5.2770	-57.3623
5.1400	-32.9345	5.2090	-57.7428	5.2780	-57.7970
5.1410	-33.5416	5.2100	-58.3830	5.2790	-57.6372
5.1420	-33.8321	5.2110	-58.5831	5.2800	-57.6184
5.1430	-34.7613	5.2120	-58.7077	5.2810	-57.3013
5.1440	-35.2387	5.2130	-57.4905	5.2820	-56.3155
5.1450	-35.4824	5.2140	-58.6988	5.2830	-56.4309
5.1460	-36.0301	5.2150	-58.8710	5.2840	-57.1007
5.1470	-36.4650	5.2160	-58.3870	5.2850	-56.7602
5.1480	-37.0553	5.2170	-58.1345	5.2860	-56.9599
5.1490	-37.2844	5.2180	-58.6977	5.2870	-56.6893
5.1500	-37.8236	5.2190	-58.2171	5.2880	-56.7188
5.1510	-38.2155	5.2200	-58.9710	5.2890	-55.9594
5.1520	-38.5869	5.2210	-58.2939	5.2900	-56.7369
5.1530	-38.8741	5.2220	-58.7422	5.2910	-56.0710
5.1540	-39.1673	5.2230	-59.2585	5.2920	-56.9369
5.1550	-39.5038	5.2240	-59.2048	5.2930	-57.1083
5.1560	-40.1683	5.2250	-58.9362	5.2940	-56.1352
5.1570	-40.4103	5.2260	-58.7432	5.2950	-56.8940
5.1580	-40.9895	5.2270	-59.1051	5.2960	-56.4294
5.1590	-41.4301	5.2280	-59.7781	5.2970	-56.3219
5.1600	-41.5020	5.2290	-59.3284	5.2980	-56.6798
5.1610	-42.3828	5.2300	-59.0017	5.2990	-56.4937
5.1620	-41.9994	5.2310	-59.2399	5.3000	-56.2651
5.1630	-43.4422	5.2320	-59.2854		
5.1640	-42.4501	5.2330	-58.9825		
5.1650	-43.3225	5.2340	-59.0656		
5.1660	-43.4757	5.2350	-59.0215		
5.1670	-43.9876	5.2360	-59.2862		
5.1680	-44.2399	5.2370	-58.7076		
5.1690	-45.1099	5.2380	-58.8573		
5.1700	-45.6916	5.2390	-58.9914		
5.1710	-45.7591	5.2400	-57.7647		
5.1720	-46.5016	5.2410	-57.8455		
5.1730	-46.6566	5.2420	-57.8279		
5.1740	-46.7595	5.2430	-57.2462		
5.1750	-47.1577	5.2440	-57.3459		
5.1760	-47.7389	5.2450	-57.0450		
5.1770	-48.5519	5.2460	-56.3753		
5.1780	-48.0101	5.2470	-56.5744		

CYLINDER #3

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-19.4496	4.1640	-13.4623	4.2280	-9.4296	4.2920	-20.5451	4.3560	-23.6849
4.1010	-19.3555	4.1650	-13.1402	4.2290	-9.7901	4.2930	-20.6109	4.3570	-23.5815
4.1020	-19.3875	4.1660	-12.4253	4.2300	-10.1405	4.2940	-20.7201	4.3580	-23.7355
4.1030	-19.4569	4.1670	-12.6534	4.2310	-10.4934	4.2950	-20.8683	4.3590	-23.6572
4.1040	-19.4763	4.1680	-12.3326	4.2320	-10.8116	4.2960	-21.0490	4.3600	-23.6424
4.1050	-19.5005	4.1690	-12.1822	4.2330	-11.1159	4.2970	-21.1357	4.3610	-23.7166
4.1060	-19.5967	4.1700	-11.9617	4.2340	-11.2865	4.2980	-21.2949	4.3620	-23.8122
4.1070	-19.6305	4.1710	-11.7276	4.2350	-11.6712	4.2990	-21.4529	4.3630	-23.8112
4.1080	-19.6174	4.1720	-11.3859	4.2360	-11.9614	4.3000	-21.6010	4.3640	-23.9067
4.1090	-19.6697	4.1730	-11.2355	4.2370	-12.4545	4.3010	-21.7006	4.3650	-23.9165
4.1100	-19.7222	4.1740	-10.9816	4.2380	-12.2250	4.3020	-21.8605	4.3660	-23.9704
4.1110	-19.7343	4.1750	-10.7227	4.2390	-12.7181	4.3030	-21.9148	4.3670	-24.0137
4.1120	-19.8033	4.1760	-10.1558	4.2400	-12.9773	4.3040	-22.0818	4.3680	-24.0870
4.1130	-19.9534	4.1770	-10.1801	4.2410	-13.1810	4.3050	-22.2102	4.3690	-24.2335
4.1140	-19.9956	4.1780	-9.9106	4.2420	-13.0640	4.3060	-22.4150	4.3700	-24.1312
4.1150	-19.9871	4.1790	-9.5967	4.2430	-13.9216	4.3070	-22.4875	4.3710	-23.6423
4.1160	-20.0761	4.1800	-9.2563	4.2440	-13.8313	4.3080	-22.8260	4.3720	-24.1333
4.1170	-20.1302	4.1810	-8.9524	4.2450	-14.3313	4.3090	-22.8041	4.3730	-24.3405
4.1180	-20.1566	4.1820	-8.6710	4.2460	-14.2242	4.3100	-22.7588	4.3740	-24.4503
4.1190	-20.1665	4.1830	-8.3824	4.2470	-14.3534	4.3110	-23.0568	4.3750	-24.5020
4.1200	-20.1692	4.1840	-8.0350	4.2480	-14.6035	4.3120	-23.2038	4.3760	-24.6030
4.1210	-19.9206	4.1850	-7.6689	4.2490	-14.6938	4.3130	-23.1547	4.3770	-24.6294
4.1220	-19.9980	4.1860	-7.2513	4.2500	-15.3270	4.3140	-23.3176	4.3780	-24.7988
4.1230	-19.9664	4.1870	-6.8595	4.2510	-15.0121	4.3150	-23.5276	4.3790	-24.7959
4.1240	-19.9322	4.1880	-6.4987	4.2520	-15.6120	4.3160	-23.6091	4.3800	-24.9849
4.1250	-19.8958	4.1890	-6.0235	4.2530	-15.3170	4.3170	-23.7323	4.3810	-25.0622
4.1260	-19.8294	4.1900	-5.5792	4.2540	-15.4618	4.3180	-23.8143	4.3820	-25.1346
4.1270	-19.7950	4.1910	-5.0760	4.2550	-15.4613	4.3190	-23.8896	4.3830	-25.1829
4.1280	-19.6947	4.1920	-4.6087	4.2560	-15.7161	4.3200	-23.8478	4.3840	-25.2667
4.1290	-19.6797	4.1930	-4.0701	4.2570	-15.8727	4.3210	-24.0193	4.3850	-25.3916
4.1300	-19.6800	4.1940	-3.5701	4.2580	-15.9885	4.3220	-24.2687	4.3860	-25.5044
4.1310	-19.5983	4.1950	-2.9268	4.2590	-16.0115	4.3230	-24.0977	4.3870	-25.7166
4.1320	-19.5665	4.1960	-2.2817	4.2600	-15.9117	4.3240	-24.1576	4.3880	-25.7378
4.1330	-19.4603	4.1970	-1.5904	4.2610	-16.3172	4.3250	-24.1730	4.3890	-25.8133
4.1340	-19.3404	4.1980	-0.9278	4.2620	-16.2116	4.3260	-23.9456	4.3900	-26.0034
4.1350	-19.2273	4.1990	-0.1124	4.2630	-16.6114	4.3270	-24.2011	4.3910	-26.0862
4.1360	-19.0760	4.2000	0.8156	4.2640	-16.7913	4.3280	-24.2292	4.3920	-26.2787
4.1370	-18.9189	4.2010	1.7754	4.2650	-16.8873	4.3290	-24.2119	4.3930	-26.2172
4.1380	-18.9890	4.2020	2.7052	4.2660	-16.8424	4.3300	-24.1750	4.3940	-26.3867
4.1390	-18.6062	4.2030	3.6855	4.2670	-17.0933	4.3310	-24.0648	4.3950	-26.3498
4.1400	-18.4591	4.2040	4.5673	4.2680	-17.2873	4.3320	-24.2333	4.3960	-26.5777
4.1410	-18.2650	4.2050	5.0841	4.2690	-17.4041	4.3330	-23.7944	4.3970	-26.6631
4.1420	-18.1742	4.2060	5.3003	4.2700	-17.4693	4.3340	-23.6854	4.3980	-26.7605
4.1430	-17.9040	4.2070	5.0591	4.2710	-17.5885	4.3350	-24.0640	4.3990	-26.6888
4.1440	-17.6801	4.2080	4.3455	4.2720	-17.7429	4.3360	-24.0269	4.4000	-26.9146
4.1450	-17.5958	4.2090	3.4254	4.2730	-17.9185	4.3370	-23.9995	4.4010	-26.8826
4.1460	-17.3093	4.2100	2.4297	4.2740	-18.0310	4.3380	-24.4091	4.4020	-27.0727
4.1470	-17.0040	4.2110	1.3937	4.2750	-18.1833	4.3390	-23.9162	4.4030	-27.1340
4.1480	-16.7714	4.2120	0.4319	4.2760	-18.2704	4.3400	-23.8953	4.4040	-27.2319
4.1490	-16.9282	4.2130	-0.5159	4.2770	-18.4170	4.3410	-23.3930	4.4050	-27.2698
4.1500	-16.5254	4.2140	-1.4384	4.2780	-18.5535	4.3420	-23.6868	4.4060	-27.3434
4.1510	-16.3808	4.2150	-2.2695	4.2790	-18.6977	4.3430	-23.3617	4.4070	-27.3412
4.1520	-16.1676	4.2160	-3.0245	4.2800	-18.8236	4.3440	-23.7841	4.4080	-27.4844
4.1530	-15.8603	4.2170	-3.7694	4.2810	-18.9449	4.3450	-23.7405	4.4090	-27.6318
4.1540	-15.9369	4.2180	-4.4543	4.2820	-19.0702	4.3460	-23.2494	4.4100	-27.4968
4.1550	-15.7282	4.2190	-5.0939	4.2830	-19.2734	4.3470	-23.3215	4.4110	-27.4646
4.1560	-15.1889	4.2200	-5.6997	4.2840	-19.3493	4.3480	-23.6164	4.4120	-27.2472
4.1570	-15.0231	4.2210	-6.2981	4.2850	-19.3740	4.3490	-23.6261	4.4130	-27.8449
4.1580	-14.7730	4.2220	-6.9401	4.2860	-19.5740	4.3500	-23.2419	4.4140	-27.8777
4.1590	-14.2255	4.2230	-7.2446	4.2870	-19.8832	4.3510	-23.5671	4.4150	-27.2318
4.1600	-14.6530	4.2240	-7.9109	4.2880	-19.9894	4.3520	-23.5734	4.4160	-27.9164
4.1610	-14.0903	4.2250	-8.0664	4.2890	-20.0245	4.3530	-23.5467	4.4170	-27.5418
4.1620	-13.8611	4.2260	-8.6380	4.2900	-20.2224	4.3540	-23.5172	4.4180	-27.5682
4.1630	-13.1711	4.2270	-9.0007	4.2910	-20.3183	4.3550	-23.6111	4.4190	-27.9540

4.4200	-27.5853	4.4890	-29.5026	4.5580	-32.1770	4.6270	-33.5151	4.6960	-34.5255
4.4210	-27.6373	4.4900	-29.6197	4.5590	-32.1642	4.6280	-33.5210	4.6970	-34.5550
4.4220	-27.6077	4.4910	-29.7106	4.5600	-32.2969	4.6290	-33.5616	4.6980	-34.6582
4.4230	-27.5660	4.4920	-29.7241	4.5610	-32.3728	4.6300	-33.6030	4.6990	-34.6338
4.4240	-27.6476	4.4930	-29.7812	4.5620	-32.3220	4.6310	-33.5581	4.7000	-34.3502
4.4250	-27.5451	4.4940	-30.0637	4.5630	-32.4554	4.6320	-33.6040	4.7010	-34.6663
4.4260	-27.6076	4.4950	-29.9213	4.5640	-32.4895	4.6330	-33.7025	4.7020	-34.6866
4.4270	-27.5668	4.4960	-29.7870	4.5650	-32.5827	4.6340	-33.6804	4.7030	-34.6621
4.4280	-27.3931	4.4970	-30.3202	4.5660	-32.5166	4.6350	-33.7630	4.7040	-34.4679
4.4290	-27.0112	4.4980	-29.8641	4.5670	-32.4110	4.6360	-33.7237	4.7050	-34.8140
4.4300	-27.9669	4.4990	-30.0554	4.5680	-32.5557	4.6370	-33.7681	4.7060	-34.6472
4.4310	-27.0167	4.5000	-30.5686	4.5690	-32.4650	4.6380	-33.7520	4.7070	-34.7699
4.4320	-27.4259	4.5010	-30.6967	4.5700	-32.5461	4.6390	-33.7838	4.7080	-34.8835
4.4330	-27.0264	4.5020	-30.3985	4.5710	-32.7891	4.6400	-33.7725	4.7090	-34.8599
4.4340	-27.3544	4.5030	-30.6742	4.5720	-32.3428	4.6410	-33.3427	4.7100	-34.8314
4.4350	-27.6387	4.5040	-30.3359	4.5730	-32.3030	4.6420	-33.4977	4.7110	-34.8794
4.4360	-27.2995	4.5050	-30.7758	4.5740	-32.4816	4.6430	-33.4048	4.7120	-34.9411
4.4370	-27.5258	4.5060	-30.5329	4.5750	-32.5049	4.6440	-33.6265	4.7130	-35.1068
4.4380	-27.2267	4.5070	-31.0003	4.5760	-32.4272	4.6450	-33.5042	4.7140	-35.0375
4.4390	-27.1274	4.5080	-31.6472	4.5770	-32.4143	4.6460	-33.5230	4.7150	-35.2097
4.4400	-26.8641	4.5090	-31.2862	4.5780	-32.3537	4.6470	-33.5267	4.7160	-35.3031
4.4410	-26.9892	4.5100	-31.8315	4.5790	-32.4104	4.6480	-33.6067	4.7170	-35.2908
4.4420	-27.0621	4.5110	-31.4512	4.5800	-32.2860	4.6490	-33.6260	4.7180	-35.3914
4.4430	-26.9791	4.5120	-31.6032	4.5810	-32.3592	4.6500	-33.7208	4.7190	-35.3101
4.4440	-27.0128	4.5130	-31.5143	4.5820	-32.4536	4.6510	-33.6929	4.7200	-35.3747
4.4450	-26.9648	4.5140	-32.2978	4.5830	-32.2163	4.6520	-33.6213	4.7210	-35.4436
4.4460	-26.8687	4.5150	-32.4186	4.5840	-32.5430	4.6530	-33.6520	4.7220	-35.4060
4.4470	-26.8966	4.5160	-31.9138	4.5850	-32.0284	4.6540	-33.8389	4.7230	-35.5667
4.4480	-26.8516	4.5170	-31.9839	4.5860	-32.5959	4.6550	-33.6389	4.7240	-35.4870
4.4490	-26.8497	4.5180	-32.0538	4.5870	-32.2855	4.6560	-33.6930	4.7250	-35.5360
4.4500	-26.8604	4.5190	-32.1516	4.5880	-32.3485	4.6570	-33.6893	4.7260	-35.5779
4.4510	-26.7867	4.5200	-32.0033	4.5890	-32.4451	4.6580	-33.6537	4.7270	-35.6717
4.4520	-26.7570	4.5210	-32.1331	4.5900	-32.3411	4.6590	-33.6659	4.7280	-36.0419
4.4530	-26.7991	4.5220	-32.0558	4.5910	-32.5300	4.6600	-33.7614	4.7290	-35.7072
4.4540	-26.7374	4.5230	-31.8816	4.5920	-32.5046	4.6610	-33.6663	4.7300	-35.7365
4.4550	-26.8165	4.5240	-31.7861	4.5930	-32.5084	4.6620	-33.6828	4.7310	-35.8939
4.4560	-26.7939	4.5250	-31.4675	4.5940	-32.5411	4.6630	-33.7022	4.7320	-35.9314
4.4570	-26.7886	4.5260	-31.4076	4.5950	-32.5824	4.6640	-33.6931	4.7330	-35.8782
4.4580	-26.8074	4.5270	-31.5832	4.5960	-32.6792	4.6650	-33.7462	4.7340	-35.9279
4.4590	-26.8336	4.5280	-31.5098	4.5970	-32.7047	4.6660	-33.7069	4.7350	-35.9458
4.4600	-26.8734	4.5290	-31.6288	4.5980	-32.7655	4.6670	-33.7587	4.7360	-35.8352
4.4610	-26.9776	4.5300	-31.4501	4.5990	-33.3669	4.6680	-33.7731	4.7370	-35.9738
4.4620	-26.9673	4.5310	-31.2603	4.6000	-32.3824	4.6690	-33.8886	4.7380	-36.0001
4.4630	-27.0079	4.5320	-31.0640	4.6010	-32.4200	4.6700	-33.7699	4.7390	-36.0728
4.4640	-27.0491	4.5330	-30.9891	4.6020	-33.5425	4.6710	-34.0922	4.7400	-36.1783
4.4650	-27.0056	4.5340	-30.9500	4.6030	-32.3829	4.6720	-33.8621	4.7410	-35.9337
4.4660	-27.1080	4.5350	-30.8551	4.6040	-32.9727	4.6730	-34.1989	4.7420	-35.8880
4.4670	-27.0373	4.5360	-30.8509	4.6050	-33.0699	4.6740	-33.8745	4.7430	-35.9042
4.4680	-27.1349	4.5370	-30.7178	4.6060	-33.0206	4.6750	-33.9083	4.7440	-35.7129
4.4690	-27.0689	4.5380	-30.7106	4.6070	-33.0349	4.6760	-33.9699	4.7450	-35.6945
4.4700	-27.2102	4.5390	-30.6233	4.6080	-33.0797	4.6770	-33.9920	4.7460	-35.9567
4.4710	-27.1363	4.5400	-30.5453	4.6090	-33.2355	4.6780	-34.0861	4.7470	-35.8357
4.4720	-27.1595	4.5410	-30.5294	4.6100	-33.2371	4.6790	-34.4792	4.7480	-35.8745
4.4730	-27.2162	4.5420	-30.6072	4.6110	-33.2336	4.6800	-33.7344	4.7490	-35.8355
4.4740	-27.4583	4.5430	-30.6161	4.6120	-33.2226	4.6810	-34.0513	4.7500	-35.8597
4.4750	-27.5312	4.5440	-30.6735	4.6130	-33.2525	4.6820	-34.1233	4.7510	-35.9283
4.4760	-27.5394	4.5450	-30.7968	4.6140	-33.3578	4.6830	-34.0657	4.7520	-35.9382
4.4770	-27.5915	4.5460	-30.7594	4.6150	-33.2531	4.6840	-34.6679	4.7530	-35.7653
4.4780	-27.8858	4.5470	-30.8358	4.6160	-33.3012	4.6850	-34.2471	4.7540	-35.9934
4.4790	-27.9132	4.5480	-30.9465	4.6170	-33.3143	4.6860	-33.7397	4.7550	-35.8986
4.4800	-28.2758	4.5490	-31.0258	4.6180	-33.2400	4.6870	-34.8468	4.7560	-36.0526
4.4810	-28.3042	4.5500	-31.0593	4.6190	-33.4383	4.6880	-34.4225	4.7570	-35.8065
4.4820	-28.7071	4.5510	-31.1631	4.6200	-33.3237	4.6890	-33.7954	4.7580	-35.8811
4.4830	-28.6196	4.5520	-31.3022	4.6210	-33.4235	4.6900	-34.4403	4.7590	-35.9869
4.4840	-29.0677	4.5530	-31.5139	4.6220	-33.3839	4.6910	-34.3768	4.7600	-35.8720
4.4850	-28.9518	4.5540	-31.6163	4.6230	-33.4134	4.6920	-34.9250	4.7610	-35.9934
4.4860	-29.1538	4.5550	-31.6707	4.6240	-33.4748	4.6930	-34.9673	4.7620	-36.0279
4.4870	-29.2659	4.5560	-31.8412	4.6250	-33.4595	4.6940	-34.4318	4.7630	-35.9727
4.4880	-29.3792	4.5570	-31.8976	4.6260	-33.5286	4.6950	-33.9951	4.7640	-35.9598

4.7650	-35.9808	4.8340	-37.9964	4.9030	-39.3608	4.9720	-24.3000	5.0410	-28.3219
4.7660	-36.0091	4.8350	-38.3370	4.9040	-39.5834	4.9730	-23.6419	5.0420	-28.6406
4.7670	-36.4864	4.8360	-38.7049	4.9050	-39.0386	4.9740	-23.0867	5.0430	-28.4722
4.7680	-36.1151	4.8370	-38.6502	4.9060	-39.5135	4.9750	-22.4822	5.0440	-28.3841
4.7690	-35.6086	4.8380	-38.7259	4.9070	-38.7571	4.9760	-22.2531	5.0450	-27.8057
4.7700	-35.5949	4.8390	-38.8893	4.9080	-38.8081	4.9770	-22.0662	5.0460	-27.7500
4.7710	-35.8931	4.8400	-39.0516	4.9090	-38.6243	4.9780	-22.0720	5.0470	-27.9203
4.7720	-36.0909	4.8410	-39.0146	4.9100	-38.2255	4.9790	-22.2938	5.0480	-27.4215
4.7730	-36.0117	4.8420	-38.8669	4.9110	-38.4416	4.9800	-22.5717	5.0490	-27.6064
4.7740	-35.9661	4.8430	-39.0381	4.9120	-37.9374	4.9810	-22.8304	5.0500	-27.1643
4.7750	-36.0810	4.8440	-38.9308	4.9130	-37.9270	4.9820	-23.1630	5.0510	-26.6449
4.7760	-35.9952	4.8450	-39.1624	4.9140	-37.8311	4.9830	-23.5134	5.0520	-26.5411
4.7770	-36.0834	4.8460	-39.4100	4.9150	-38.4740	4.9840	-23.8328	5.0530	-26.4125
4.7780	-36.2108	4.8470	-39.1842	4.9160	-38.3864	4.9850	-24.1010	5.0540	-26.4062
4.7790	-36.6954	4.8480	-40.1392	4.9170	-38.5950	4.9860	-24.3203	5.0550	-26.0743
4.7800	-36.1232	4.8490	-39.5934	4.9180	-38.7332	4.9870	-24.7231	5.0560	-26.1192
4.7810	-36.6971	4.8500	-39.6349	4.9190	-38.8310	4.9880	-25.0989	5.0570	-25.6542
4.7820	-36.5917	4.8510	-39.3400	4.9200	-38.9359	4.9890	-25.2722	5.0580	-25.6290
4.7830	-36.1941	4.8520	-41.0848	4.9210	-39.9908	4.9900	-25.5805	5.0590	-25.4030
4.7840	-36.1646	4.8530	-40.0059	4.9220	-39.7184	4.9910	-26.1094	5.0600	-25.1351
4.7850	-36.1472	4.8540	-40.2827	4.9230	-40.4582	4.9920	-26.3564	5.0610	-24.9144
4.7860	-36.5271	4.8550	-40.2029	4.9240	-41.0140	4.9930	-26.5743	5.0620	-24.6413
4.7870	-36.1567	4.8560	-40.5226	4.9250	-41.3136	4.9940	-26.8399	5.0630	-24.4241
4.7880	-36.2005	4.8570	-42.2177	4.9260	-41.7928	4.9950	-27.1235	5.0640	-24.2234
4.7890	-36.1340	4.8580	-42.2297	4.9270	-42.0437	4.9960	-27.2576	5.0650	-24.0406
4.7900	-35.8921	4.8590	-41.2829	4.9280	-42.7820	4.9970	-27.3856	5.0660	-23.7634
4.7910	-36.1438	4.8600	-41.7050	4.9290	-42.6357	4.9980	-27.5504	5.0670	-23.4723
4.7920	-36.2221	4.8610	-42.6735	4.9300	-43.4152	4.9990	-27.6792	5.0680	-23.2525
4.7930	-36.0197	4.8620	-42.2980	4.9310	-43.3738	5.0000	-28.0618	5.0690	-22.9768
4.7940	-36.0176	4.8630	-43.3539	4.9320	-44.4338	5.0010	-28.1741	5.0700	-22.7003
4.7950	-35.9550	4.8640	-43.8537	4.9330	-44.9884	5.0020	-28.3482	5.0710	-22.4068
4.7960	-36.0024	4.8650	-44.2733	4.9340	-44.9707	5.0030	-28.1822	5.0720	-22.1547
4.7970	-35.9967	4.8660	-44.5492	4.9350	-45.6331	5.0040	-28.9155	5.0730	-21.8340
4.7980	-35.9827	4.8670	-45.8538	4.9360	-45.6831	5.0050	-28.9612	5.0740	-21.6308
4.7990	-36.0235	4.8680	-44.8902	4.9370	-46.0101	5.0060	-28.5983	5.0750	-21.2524
4.8000	-35.9409	4.8690	-46.8569	4.9380	-48.2880	5.0070	-28.9097	5.0760	-20.9311
4.8010	-35.9471	4.8700	-46.6265	4.9390	-46.1750	5.0080	-28.8736	5.0770	-20.7253
4.8020	-35.8958	4.8710	-47.0263	4.9400	-46.3397	5.0090	-29.3928	5.0780	-20.3467
4.8030	-36.0922	4.8720	-46.4608	4.9410	-46.3183	5.0100	-29.1929	5.0790	-19.9916
4.8040	-35.9810	4.8730	-45.8366	4.9420	-46.3317	5.0110	-29.2697	5.0800	-19.6157
4.8050	-35.9653	4.8740	-46.1673	4.9430	-45.1919	5.0120	-29.4788	5.0810	-19.3362
4.8060	-35.9442	4.8750	-45.4859	4.9440	-47.0679	5.0130	-29.3973	5.0820	-19.0884
4.8070	-35.9854	4.8760	-46.3177	4.9450	-45.1188	5.0140	-29.4181	5.0830	-18.6477
4.8080	-36.1239	4.8770	-45.1037	4.9460	-44.5196	5.0150	-29.4243	5.0840	-18.3041
4.8090	-36.0440	4.8780	-45.4657	4.9470	-44.4623	5.0160	-29.5409	5.0850	-17.7984
4.8100	-36.0850	4.8790	-44.7289	4.9480	-43.4245	5.0170	-29.7725	5.0860	-17.3789
4.8110	-36.1556	4.8800	-45.3607	4.9490	-43.7677	5.0180	-29.6987	5.0870	-17.1294
4.8120	-36.2052	4.8810	-44.6987	4.9500	-42.6882	5.0190	-29.5039	5.0880	-16.6832
4.8130	-36.3908	4.8820	-44.5090	4.9510	-41.4018	5.0200	-29.3679	5.0890	-16.1651
4.8140	-36.7013	4.8830	-44.6096	4.9520	-41.5857	5.0210	-29.3772	5.0900	-15.3874
4.8150	-36.4084	4.8840	-44.2453	4.9530	-41.0594	5.0220	-29.2320	5.0910	-15.1355
4.8160	-36.5560	4.8850	-43.6746	4.9540	-40.6249	5.0230	-28.9782	5.0920	-14.3641
4.8170	-36.6614	4.8860	-44.3272	4.9550	-39.1066	5.0240	-29.7165	5.0930	-14.3843
4.8180	-36.7159	4.8870	-43.4017	4.9560	-38.9024	5.0250	-29.3719	5.0940	-13.7147
4.8190	-36.7089	4.8880	-43.4579	4.9570	-37.7159	5.0260	-29.6324	5.0950	-13.1707
4.8200	-36.8378	4.8890	-42.6875	4.9580	-36.9564	5.0270	-29.1547	5.0960	-13.3298
4.8210	-37.0086	4.8900	-42.4091	4.9590	-36.0180	5.0280	-29.5040	5.0970	-12.8623
4.8220	-36.9909	4.8910	-42.1400	4.9600	-35.1845	5.0290	-29.4424	5.0980	-12.6719
4.8230	-37.0193	4.8920	-41.8898	4.9610	-34.0560	5.0300	-29.4770	5.0990	-12.6938
4.8240	-37.4349	4.8930	-41.3405	4.9620	-33.2350	5.0310	-28.5188	5.1000	-12.7202
4.8250	-37.3833	4.8940	-41.0312	4.9630	-33.0130	5.0320	-28.9123	5.1010	-12.9030
4.8260	-37.7166	4.8950	-41.3513	4.9640	-31.6554	5.0330	-29.3355	5.1020	-12.9988
4.8270	-37.8150	4.8960	-40.8935	4.9650	-31.0849	5.0340	-28.8371	5.1030	-13.1065
4.8280	-37.4970	4.8970	-40.3293	4.9660	-29.8898	5.0350	-29.2835	5.1040	-13.3156
4.8290	-38.0080	4.8980	-40.5563	4.9670	-28.9105	5.0360	-28.2565	5.1050	-13.5469
4.8300	-37.7362	4.8990	-40.2338	4.9680	-27.6881	5.0370	-28.6476	5.1060	-13.8620
4.8310	-37.9747	4.9000	-39.9766	4.9690	-26.8850	5.0380	-28.5996	5.1070	-14.4054
4.8320	-38.2465	4.9010	-40.6836	4.9700	-26.0466	5.0390	-28.9362	5.1080	-14.3556
4.8330	-38.0493	4.9020	-39.6689	4.9710	-25.2438	5.0400	-28.3858	5.1090	-15.0368

5.1100	-14.9549	5.1790	-29.6460	5.2480	-30.5334
5.1110	-14.9563	5.1800	-29.4964	5.2490	-30.3483
5.1120	-15.9738	5.1810	-30.2405	5.2500	-30.0578
5.1130	-15.5452	5.1820	-30.1773	5.2510	-29.9539
5.1140	-16.2179	5.1830	-30.1023	5.2520	-29.9688
5.1150	-16.1981	5.1840	-30.1721	5.2530	-30.0099
5.1160	-16.4683	5.1850	-30.2740	5.2540	-30.0396
5.1170	-16.6816	5.1860	-30.3585	5.2550	-30.1905
5.1180	-17.7331	5.1870	-30.4309	5.2560	-30.1468
5.1190	-17.6025	5.1880	-30.5529	5.2570	-30.3645
5.1200	-18.3128	5.1890	-30.5217	5.2580	-30.3274
5.1210	-18.1132	5.1900	-30.7206	5.2590	-30.4744
5.1220	-18.8706	5.1910	-30.7824	5.2600	-30.5213
5.1230	-18.6558	5.1920	-30.8571	5.2610	-30.6142
5.1240	-18.8713	5.1930	-30.9247	5.2620	-31.0003
5.1250	-19.1520	5.1940	-31.3209	5.2630	-30.8921
5.1260	-19.3649	5.1950	-30.7331	5.2640	-30.9550
5.1270	-19.1403	5.1960	-31.2756	5.2650	-31.0955
5.1280	-19.9140	5.1970	-31.3224	5.2660	-31.3712
5.1290	-20.1412	5.1980	-31.3480	5.2670	-31.6499
5.1300	-19.9257	5.1990	-31.5949	5.2680	-31.7230
5.1310	-20.6367	5.2000	-31.6913	5.2690	-31.8432
5.1320	-20.9036	5.2010	-31.8195	5.2700	-31.9841
5.1330	-21.5335	5.2020	-31.9382	5.2710	-32.0862
5.1340	-21.4144	5.2030	-32.0771	5.2720	-32.1002
5.1350	-21.5758	5.2040	-31.8430	5.2730	-32.1470
5.1360	-21.8890	5.2050	-32.8022	5.2740	-32.2377
5.1370	-22.1196	5.2060	-32.5290	5.2750	-32.3454
5.1380	-22.0135	5.2070	-32.5936	5.2760	-32.5849
5.1390	-22.5428	5.2080	-32.7966	5.2770	-32.6742
5.1400	-23.0476	5.2090	-33.3750	5.2780	-32.6753
5.1410	-22.9724	5.2100	-33.4434	5.2790	-32.8986
5.1420	-23.2278	5.2110	-33.5916	5.2800	-32.9861
5.1430	-23.5234	5.2120	-33.0958	5.2810	-33.1702
5.1440	-23.6314	5.2130	-32.6977	5.2820	-33.8446
5.1450	-23.7199	5.2140	-32.6891	5.2830	-33.8553
5.1460	-23.9591	5.2150	-33.3046	5.2840	-33.7817
5.1470	-24.2482	5.2160	-32.7870	5.2850	-33.3657
5.1480	-24.4281	5.2170	-33.2483	5.2860	-33.2677
5.1490	-24.5372	5.2180	-32.7325	5.2870	-33.3637
5.1500	-24.7267	5.2190	-33.7234	5.2880	-33.3685
5.1510	-24.8536	5.2200	-33.6658	5.2890	-34.0004
5.1520	-24.9646	5.2210	-32.7819	5.2900	-33.4366
5.1530	-25.1338	5.2220	-32.7056	5.2910	-33.4687
5.1540	-25.2624	5.2230	-32.9947	5.2920	-34.4223
5.1550	-25.4165	5.2240	-32.9568	5.2930	-33.8533
5.1560	-25.5624	5.2250	-32.8337	5.2940	-33.4348
5.1570	-25.6745	5.2260	-33.0122	5.2950	-33.9801
5.1580	-25.7374	5.2270	-32.5719	5.2960	-33.4219
5.1590	-26.0554	5.2280	-32.5299	5.2970	-34.0988
5.1600	-26.2105	5.2290	-32.6011	5.2980	-34.6271
5.1610	-26.3450	5.2300	-32.3487	5.2990	-34.7393
5.1620	-26.4953	5.2310	-32.3200	5.3000	-34.0977
5.1630	-26.7829	5.2320	-32.2549		
5.1640	-26.9138	5.2330	-32.0770		
5.1650	-27.1137	5.2340	-32.0648		
5.1660	-27.3562	5.2350	-31.9896		
5.1670	-27.4740	5.2360	-31.9308		
5.1680	-27.8219	5.2370	-31.9572		
5.1690	-27.8892	5.2380	-31.8627		
5.1700	-28.1060	5.2390	-31.8076		
5.1710	-28.2630	5.2400	-31.8622		
5.1720	-28.3432	5.2410	-31.8552		
5.1730	-28.6626	5.2420	-31.8643		
5.1740	-28.9040	5.2430	-31.6887		
5.1750	-29.0700	5.2440	-31.3235		
5.1760	-29.2707	5.2450	-31.3863		
5.1770	-29.0675	5.2460	-30.9270		
5.1780	-29.2174	5.2470	-30.8331		

CYLINDER #4

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-13.5922	4.1640	-7.1475	4.2280	-4.2207	4.2920	-14.9396	4.3560	-17.4723
4.1010	-13.5321	4.1650	-6.8036	4.2290	-4.6302	4.2930	-14.9970	4.3570	-17.4333
4.1020	-13.5350	4.1660	-6.0896	4.2300	-4.9784	4.2940	-15.1880	4.3580	-17.6617
4.1030	-13.5481	4.1670	-6.2721	4.2310	-5.2875	4.2950	-15.2757	4.3590	-17.5526
4.1040	-13.5596	4.1680	-6.0478	4.2320	-5.6044	4.2960	-15.4145	4.3600	-17.5955
4.1050	-13.6034	4.1690	-5.7586	4.2330	-5.8809	4.2970	-15.5574	4.3610	-17.6344
4.1060	-13.6435	4.1700	-5.4889	4.2340	-6.0290	4.2980	-15.6795	4.3620	-17.7084
4.1070	-13.7709	4.1710	-5.2387	4.2350	-6.6078	4.2990	-15.8884	4.3630	-17.7458
4.1080	-13.7791	4.1720	-4.8514	4.2360	-6.8900	4.3000	-16.0447	4.3640	-17.8231
4.1090	-13.8225	4.1730	-4.6807	4.2370	-7.1640	4.3010	-16.0799	4.3650	-17.8589
4.1100	-13.8855	4.1740	-4.4101	4.2380	-6.8973	4.3020	-16.2663	4.3660	-17.9448
4.1110	-13.9062	4.1750	-4.1190	4.2390	-7.4548	4.3030	-16.3318	4.3670	-17.9604
4.1120	-13.9498	4.1760	-3.5226	4.2400	-7.6136	4.3040	-16.5454	4.3680	-18.0812
4.1130	-13.9888	4.1770	-3.5265	4.2410	-8.1340	4.3050	-16.6814	4.3690	-18.1866
4.1140	-14.0108	4.1780	-3.0131	4.2420	-7.7785	4.3060	-16.7305	4.3700	-18.1849
4.1150	-14.0439	4.1790	-2.9230	4.2430	-8.2190	4.3070	-16.9528	4.3710	-18.2747
4.1160	-14.1199	4.1800	-2.6339	4.2440	-8.4108	4.3080	-17.1741	4.3720	-18.3652
4.1170	-14.1521	4.1810	-2.2806	4.2450	-8.9296	4.3090	-17.0246	4.3730	-18.4381
4.1180	-14.1621	4.1820	-1.9789	4.2460	-8.8035	4.3100	-17.2891	4.3740	-18.5068
4.1190	-14.1558	4.1830	-1.5875	4.2470	-8.9194	4.3110	-17.4398	4.3750	-18.6658
4.1200	-14.1285	4.1840	-1.2850	4.2480	-9.5342	4.3120	-17.3813	4.3760	-18.6820
4.1210	-13.9666	4.1850	-0.8548	4.2490	-9.2533	4.3130	-17.6263	4.3770	-18.7182
4.1220	-14.0399	4.1860	-0.4825	4.2500	-9.4487	4.3140	-17.8050	4.3780	-18.8872
4.1230	-14.0043	4.1870	-0.0073	4.2510	-9.5483	4.3150	-17.7462	4.3790	-18.8254
4.1240	-13.9477	4.1880	0.3973	4.2520	-10.1477	4.3160	-17.9576	4.3800	-18.8248
4.1250	-13.8959	4.1890	0.9165	4.2530	-9.8025	4.3170	-18.0481	4.3810	-19.1132
4.1260	-13.9011	4.1900	1.4271	4.2540	-10.0025	4.3180	-18.1208	4.3820	-19.2872
4.1270	-13.8069	4.1910	1.9606	4.2550	-10.1277	4.3190	-18.1948	4.3830	-19.3028
4.1280	-13.6930	4.1920	2.5339	4.2560	-9.8499	4.3200	-18.1452	4.3840	-19.4457
4.1290	-13.6493	4.1930	3.1103	4.2570	-10.2617	4.3210	-18.3461	4.3850	-19.5724
4.1300	-13.5891	4.1940	3.7469	4.2580	-10.1490	4.3220	-18.5573	4.3860	-19.6361
4.1310	-13.5447	4.1950	4.4543	4.2590	-11.0091	4.3230	-18.3964	4.3870	-19.7850
4.1320	-13.3833	4.1960	5.1179	4.2600	-10.4573	4.3240	-18.4162	4.3880	-19.8472
4.1330	-13.3289	4.1970	5.9338	4.2610	-10.9048	4.3250	-18.1760	4.3890	-19.9849
4.1340	-13.2083	4.1980	6.7265	4.2620	-10.7297	4.3260	-18.5067	4.3900	-20.0713
4.1350	-13.0342	4.1990	7.5837	4.2630	-11.1577	4.3270	-18.4622	4.3910	-20.1446
4.1360	-12.9268	4.2000	8.3961	4.2640	-11.2731	4.3280	-18.4762	4.3920	-20.2197
4.1370	-12.7307	4.2010	9.2222	4.2650	-11.3922	4.3290	-18.5934	4.3930	-20.2179
4.1380	-12.8077	4.2020	9.7858	4.2660	-11.3288	4.3300	-18.7905	4.3940	-20.3467
4.1390	-12.4079	4.2030	10.2095	4.2670	-11.6341	4.3310	-18.6787	4.3950	-20.4152
4.1400	-12.2954	4.2040	10.2769	4.2680	-11.7590	4.3320	-18.3930	4.3960	-20.4354
4.1410	-11.9819	4.2050	9.9236	4.2690	-11.8852	4.3330	-17.9680	4.3970	-20.5395
4.1420	-12.0059	4.2060	9.3336	4.2700	-11.9319	4.3340	-18.3026	4.3980	-20.5810
4.1430	-11.7019	4.2070	8.5505	4.2710	-12.1349	4.3350	-18.3176	4.3990	-20.4279
4.1440	-11.5626	4.2080	7.6343	4.2720	-12.2085	4.3360	-18.6905	4.4000	-20.6681
4.1450	-11.3092	4.2090	6.7197	4.2730	-12.4244	4.3370	-18.2408	4.4010	-20.7392
4.1460	-11.1488	4.2100	5.7984	4.2740	-12.4784	4.3380	-18.2050	4.4020	-20.8045
4.1470	-10.8256	4.2110	4.8897	4.2750	-12.6466	4.3390	-18.1616	4.4030	-20.8022
4.1480	-10.7746	4.2120	4.1202	4.2760	-12.7359	4.3400	-18.5528	4.4040	-20.9280
4.1490	-10.5659	4.2130	3.3093	4.2770	-12.8757	4.3410	-17.5933	4.4050	-20.9633
4.1500	-10.3218	4.2140	2.5177	4.2780	-13.0100	4.3420	-18.0133	4.4060	-21.0318
4.1510	-10.1366	4.2150	1.9015	4.2790	-13.1397	4.3430	-17.9313	4.4070	-21.1703
4.1520	-9.8932	4.2160	1.2321	4.2800	-13.2840	4.3440	-18.3276	4.4080	-21.1227
4.1530	-9.6713	4.2170	0.6228	4.2810	-13.4125	4.3450	-17.8658	4.4090	-21.0991
4.1540	-9.4995	4.2180	0.0927	4.2820	-13.5405	4.3460	-17.3250	4.4100	-21.1204
4.1550	-9.2025	4.2190	-0.4262	4.2830	-13.6587	4.3470	-17.3123	4.4110	-21.3949
4.1560	-9.2970	4.2200	-0.9585	4.2840	-13.8457	4.3480	-17.7126	4.4120	-21.1402
4.1570	-8.7733	4.2210	-1.3701	4.2850	-13.8557	4.3490	-17.9614	4.4130	-21.1477
4.1580	-8.6015	4.2220	-2.1237	4.2860	-14.1400	4.3500	-17.3256	4.4140	-21.1572
4.1590	-8.2093	4.2230	-2.2185	4.2870	-14.1953	4.3510	-17.5085	4.4150	-20.8260
4.1600	-8.0384	4.2240	-2.9728	4.2880	-14.3661	4.3520	-17.5358	4.4160	-21.1733
4.1610	-7.8066	4.2250	-3.2036	4.2890	-14.4256	4.3530	-17.4930	4.4170	-21.5450
4.1620	-7.5514	4.2260	-3.6246	4.2900	-14.6156	4.3540	-17.5272	4.4180	-21.1776
4.1630	-6.8963	4.2270	-3.9552	4.2910	-14.7100	4.3550	-17.7011	4.4190	-21.1777

4.4200	-21.5628	4.4890	-21.3234	4.5580	-26.1289	4.6270	-26.3635	4.6960	-26.3563
4.4210	-21.2138	4.4900	-21.5483	4.5590	-26.1392	4.6280	-26.3431	4.6970	-26.5563
4.4220	-21.1774	4.4910	-21.7134	4.5600	-26.1745	4.6290	-26.2969	4.6980	-26.4657
4.4230	-21.5561	4.4920	-21.8284	4.5610	-26.2537	4.6300	-26.2478	4.6990	-26.4835
4.4240	-21.1807	4.4930	-21.9505	4.5620	-26.3123	4.6310	-26.3134	4.7000	-26.1436
4.4250	-21.6164	4.4940	-22.2440	4.5630	-26.3385	4.6320	-26.2957	4.7010	-26.5016
4.4260	-21.1327	4.4950	-22.2520	4.5640	-26.3731	4.6330	-26.3057	4.7020	-26.4733
4.4270	-21.5462	4.4960	-22.2207	4.5650	-26.5423	4.6340	-26.1942	4.7030	-26.4467
4.4280	-21.5016	4.4970	-22.7583	4.5660	-26.3096	4.6350	-26.2734	4.7040	-26.2269
4.4290	-20.5341	4.4980	-22.4550	4.5670	-26.3757	4.6360	-26.2536	4.7050	-26.5863
4.4300	-20.8819	4.4990	-22.8434	4.5680	-26.3146	4.6370	-26.2646	4.7060	-26.2663
4.4310	-20.5240	4.5000	-23.2191	4.5690	-26.3109	4.6380	-26.2463	4.7070	-26.4181
4.4320	-20.9222	4.5010	-23.0697	4.5700	-26.2060	4.6390	-26.2576	4.7080	-26.4500
4.4330	-20.8463	4.5020	-23.1904	4.5710	-26.4434	4.6400	-26.2137	4.7090	-26.4565
4.4340	-20.4750	4.5030	-23.2753	4.5720	-26.1296	4.6410	-26.3153	4.7100	-26.3965
4.4350	-20.8007	4.5040	-23.0388	4.5730	-26.0854	4.6420	-26.2842	4.7110	-26.4436
4.4360	-20.7847	4.5050	-23.5136	4.5740	-26.0110	4.6430	-26.3126	4.7120	-26.4736
4.4370	-21.0083	4.5060	-23.1987	4.5750	-25.8059	4.6440	-26.3900	4.7130	-26.5718
4.4380	-20.6647	4.5070	-23.6847	4.5760	-25.9100	4.6450	-26.3140	4.7140	-26.5807
4.4390	-20.5858	4.5080	-23.7269	4.5770	-25.8417	4.6460	-26.3694	4.7150	-26.6461
4.4400	-20.5326	4.5090	-23.7898	4.5780	-25.7871	4.6470	-26.3725	4.7160	-26.4933
4.4410	-20.6883	4.5100	-23.7475	4.5790	-25.7169	4.6480	-26.4444	4.7170	-26.6060
4.4420	-20.4404	4.5110	-24.3245	4.5800	-25.7016	4.6490	-26.4758	4.7180	-26.6163
4.4430	-20.4203	4.5120	-24.3991	4.5810	-25.6924	4.6500	-26.4875	4.7190	-26.6225
4.4440	-20.3838	4.5130	-23.9617	4.5820	-25.6166	4.6510	-26.5155	4.7200	-26.5616
4.4450	-20.2934	4.5140	-23.9054	4.5830	-25.7141	4.6520	-26.5153	4.7210	-26.6644
4.4460	-20.2411	4.5150	-24.0675	4.5840	-25.7918	4.6530	-26.6146	4.7220	-26.7370
4.4470	-20.2301	4.5160	-24.1285	4.5850	-25.3835	4.6540	-26.7024	4.7230	-26.7143
4.4480	-20.1721	4.5170	-24.1823	4.5860	-25.8441	4.6550	-26.3599	4.7240	-26.7334
4.4490	-20.1573	4.5180	-24.1509	4.5870	-25.5675	4.6560	-26.5689	4.7250	-26.8240
4.4500	-20.0887	4.5190	-24.2297	4.5880	-25.7163	4.6570	-26.5341	4.7260	-26.8816
4.4510	-20.0385	4.5200	-24.1669	4.5890	-25.5873	4.6580	-26.5387	4.7270	-26.9131
4.4520	-20.0504	4.5210	-24.3527	4.5900	-25.5909	4.6590	-26.5432	4.7280	-26.9004
4.4530	-19.9798	4.5220	-24.7000	4.5910	-25.6323	4.6600	-26.5788	4.7290	-26.9395
4.4540	-19.9357	4.5230	-24.3463	4.5920	-25.6805	4.6610	-26.5466	4.7300	-26.9931
4.4550	-19.9774	4.5240	-24.2726	4.5930	-25.6879	4.6620	-26.5309	4.7310	-27.1762
4.4560	-19.9227	4.5250	-24.0811	4.5940	-25.7170	4.6630	-26.5703	4.7320	-27.1204
4.4570	-19.9074	4.5260	-24.1691	4.5950	-25.7442	4.6640	-26.5199	4.7330	-27.1543
4.4580	-19.9696	4.5270	-24.3613	4.5960	-25.7660	4.6650	-26.5191	4.7340	-27.2730
4.4590	-19.8960	4.5280	-24.4450	4.5970	-25.8039	4.6660	-26.5328	4.7350	-27.1940
4.4600	-19.8690	4.5290	-24.4858	4.5980	-25.8553	4.6670	-26.5083	4.7360	-27.3018
4.4610	-19.8793	4.5300	-24.4831	4.5990	-25.8975	4.6680	-26.6090	4.7370	-27.2598
4.4620	-19.9088	4.5310	-24.4513	4.6000	-25.4820	4.6690	-26.4504	4.7380	-27.3785
4.4630	-19.8736	4.5320	-24.4577	4.6010	-26.0170	4.6700	-26.5966	4.7390	-27.4660
4.4640	-19.8859	4.5330	-24.4642	4.6020	-25.9670	4.6710	-26.4561	4.7400	-27.6335
4.4650	-19.8532	4.5340	-24.4939	4.6030	-25.5661	4.6720	-26.5840	4.7410	-27.5817
4.4660	-19.8819	4.5350	-24.4252	4.6040	-26.0640	4.6730	-26.4434	4.7420	-27.6828
4.4670	-19.8274	4.5360	-24.5106	4.6050	-26.0719	4.6740	-26.5431	4.7430	-27.5114
4.4680	-19.8971	4.5370	-24.5424	4.6060	-26.0304	4.6750	-26.4446	4.7440	-27.6601
4.4690	-19.8004	4.5380	-24.5312	4.6070	-26.0610	4.6760	-26.5146	4.7450	-27.6580
4.4700	-19.8301	4.5390	-24.6159	4.6080	-26.2868	4.6770	-26.4675	4.7460	-27.4335
4.4710	-19.9691	4.5400	-24.6607	4.6090	-26.2574	4.6780	-26.5234	4.7470	-27.6901
4.4720	-19.7803	4.5410	-24.6494	4.6100	-26.6727	4.6790	-26.4756	4.7480	-27.7513
4.4730	-19.8625	4.5420	-24.8076	4.6110	-25.8956	4.6800	-26.1309	4.7490	-27.7407
4.4740	-19.9561	4.5430	-24.7251	4.6120	-26.0123	4.6810	-26.4243	4.7500	-27.6741
4.4750	-19.9618	4.5440	-24.8121	4.6130	-26.6651	4.6820	-26.4369	4.7510	-27.7925
4.4760	-20.0093	4.5450	-24.8839	4.6140	-26.3807	4.6830	-26.4946	4.7520	-27.8137
4.4770	-20.0967	4.5460	-24.9533	4.6150	-26.3958	4.6840	-26.9027	4.7530	-27.8913
4.4780	-20.2671	4.5470	-24.9829	4.6160	-26.3982	4.6850	-26.9756	4.7540	-27.9635
4.4790	-20.1898	4.5480	-25.0550	4.6170	-26.5903	4.6860	-25.9541	4.7550	-27.8757
4.4800	-20.5118	4.5490	-25.1521	4.6180	-26.2883	4.6870	-26.4956	4.7560	-27.8770
4.4810	-20.3336	4.5500	-25.2311	4.6190	-26.4160	4.6880	-26.5206	4.7570	-27.9032
4.4820	-20.6060	4.5510	-25.3222	4.6200	-26.4205	4.6890	-26.5281	4.7580	-27.7291
4.4830	-20.6979	4.5520	-25.3639	4.6210	-26.4147	4.6900	-26.5292	4.7590	-27.7153
4.4840	-20.9845	4.5530	-25.5315	4.6220	-26.4686	4.6910	-26.4440	4.7600	-27.9286
4.4850	-20.9362	4.5540	-25.6525	4.6230	-26.4211	4.6920	-26.4937	4.7610	-27.7591
4.4860	-21.0550	4.5550	-25.7346	4.6240	-26.4185	4.6930	-26.5513	4.7620	-27.9518
4.4870	-21.1740	4.5560	-25.8987	4.6250	-26.4196	4.6940	-26.4238	4.7630	-27.9101
4.4880	-21.2994	4.5570	-25.8905	4.6260	-26.4508	4.6950	-26.0110	4.7640	-28.2907

4.7650	-28.2975	4.8340	-28.6176	4.9030	-26.8129	4.9720	-13.2564	5.0410	-23.5828
4.7660	-27.9340	4.8350	-28.5207	4.9040	-26.6334	4.9730	-12.5372	5.0420	-23.6003
4.7670	-27.9151	4.8360	-28.8641	4.9050	-26.5738	4.9740	-11.9601	5.0430	-24.0411
4.7680	-27.9185	4.8370	-28.8163	4.9060	-26.4807	4.9750	-11.4086	5.0440	-24.0663
4.7690	-27.5101	4.8380	-28.8439	4.9070	-26.3669	4.9760	-11.2940	5.0450	-23.2212
4.7700	-27.3743	4.8390	-29.0157	4.9080	-26.1578	4.9770	-11.1134	5.0460	-23.6475
4.7710	-27.8275	4.8400	-28.9343	4.9090	-26.2168	4.9780	-11.1993	5.0470	-23.6074
4.7720	-27.7796	4.8410	-29.0690	4.9100	-26.0047	4.9790	-11.4472	5.0480	-23.2353
4.7730	-27.7334	4.8420	-28.9829	4.9110	-26.0649	4.9800	-11.7363	5.0490	-23.5195
4.7740	-27.7617	4.8430	-28.9773	4.9120	-26.0419	4.9810	-12.1436	5.0500	-23.4475
4.7750	-27.7203	4.8440	-28.8432	4.9130	-25.9136	4.9820	-12.4013	5.0510	-23.1021
4.7760	-27.7368	4.8450	-29.1622	4.9140	-25.8935	4.9830	-12.8589	5.0520	-23.3651
4.7770	-28.1984	4.8460	-28.9997	4.9150	-25.8960	4.9840	-13.1822	5.0530	-22.9707
4.7780	-27.1600	4.8470	-29.0643	4.9160	-25.7844	4.9850	-13.5950	5.0540	-23.2285
4.7790	-27.5664	4.8480	-28.7786	4.9170	-26.0364	4.9860	-13.9731	5.0550	-22.9684
4.7800	-27.6132	4.8490	-29.1005	4.9180	-26.0579	4.9870	-14.4975	5.0560	-23.0874
4.7810	-27.6000	4.8500	-29.0557	4.9190	-26.1698	4.9880	-14.8961	5.0570	-22.8396
4.7820	-27.8906	4.8510	-28.7235	4.9200	-26.2243	4.9890	-15.1997	5.0580	-22.8425
4.7830	-27.4712	4.8520	-29.0750	4.9210	-26.2631	4.9900	-15.6796	5.0590	-22.6588
4.7840	-26.9994	4.8530	-29.0595	4.9220	-26.3846	4.9910	-15.9334	5.0600	-22.5701
4.7850	-27.3317	4.8540	-29.0732	4.9230	-26.5776	4.9920	-16.4710	5.0610	-22.4566
4.7860	-27.6428	4.8550	-28.8216	4.9240	-26.5465	4.9930	-16.8339	5.0620	-22.3679
4.7870	-26.9432	4.8560	-28.7508	4.9250	-26.7558	4.9940	-17.1746	5.0630	-22.1592
4.7880	-27.1852	4.8570	-29.1645	4.9260	-26.9980	4.9950	-17.5079	5.0640	-22.1242
4.7890	-27.1381	4.8580	-28.8444	4.9270	-27.0686	4.9960	-17.8129	5.0650	-21.8958
4.7900	-27.1015	4.8590	-28.8827	4.9280	-27.1291	4.9970	-18.0714	5.0660	-21.7782
4.7910	-27.1567	4.8600	-28.9866	4.9290	-27.4923	4.9980	-18.3579	5.0670	-21.5950
4.7920	-27.0638	4.8610	-29.5405	4.9300	-27.5083	4.9990	-18.5559	5.0680	-21.4325
4.7930	-26.8576	4.8620	-29.1483	4.9310	-27.5502	5.0000	-18.7794	5.0690	-21.2462
4.7940	-26.9524	4.8630	-29.2755	4.9320	-27.7902	5.0010	-19.0055	5.0700	-21.0592
4.7950	-26.8426	4.8640	-29.3826	4.9330	-28.1350	5.0020	-19.2025	5.0710	-20.8607
4.7960	-26.9544	4.8650	-29.9873	4.9340	-28.3722	5.0030	-19.1090	5.0720	-20.6828
4.7970	-26.9122	4.8660	-30.1160	4.9350	-28.2588	5.0040	-19.8312	5.0730	-20.4573
4.7980	-26.8184	4.8670	-30.2064	4.9360	-28.3868	5.0050	-19.6813	5.0740	-20.2975
4.7990	-26.9248	4.8680	-29.8395	4.9370	-28.7986	5.0060	-19.8152	5.0750	-20.0255
4.8000	-26.8037	4.8690	-30.5574	4.9380	-29.0064	5.0070	-19.9575	5.0760	-19.8107
4.8010	-26.8505	4.8700	-30.9141	4.9390	-29.1823	5.0080	-20.1684	5.0770	-19.6599
4.8020	-26.8522	4.8710	-30.6358	4.9400	-29.3513	5.0090	-20.4645	5.0780	-19.3030
4.8030	-26.9295	4.8720	-30.6740	4.9410	-29.5540	5.0100	-20.4244	5.0790	-19.0934
4.8040	-26.8114	4.8730	-30.7500	4.9420	-29.4651	5.0110	-20.4402	5.0800	-18.8497
4.8050	-26.9259	4.8740	-30.3146	4.9430	-29.2724	5.0120	-20.5655	5.0810	-18.5866
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4.8070	-26.8630	4.8760	-30.6794	4.9450	-29.6923	5.0140	-20.7594	5.0830	-18.0510
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4.8090	-26.9878	4.8780	-30.4789	4.9470	-29.4862	5.0160	-20.9197	5.0850	-17.5100
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4.8120	-27.0960	4.8810	-29.9086	4.9500	-28.9867	5.0190	-21.3091	5.0880	-16.3041
4.8130	-27.1833	4.8820	-29.9078	4.9510	-28.1374	5.0200	-21.6902	5.0890	-15.6382
4.8140	-27.1792	4.8830	-29.7966	4.9520	-28.3584	5.0210	-21.4411	5.0900	-15.4267
4.8150	-27.2719	4.8840	-29.5465	4.9530	-28.0162	5.0220	-21.9254	5.0910	-15.2487
4.8160	-27.4208	4.8850	-29.4632	4.9540	-27.0736	5.0230	-21.8513	5.0920	-14.2740
4.8170	-27.4964	4.8860	-29.0819	4.9550	-26.6292	5.0240	-21.8006	5.0930	-14.1135
4.8180	-27.5433	4.8870	-29.1531	4.9560	-26.5705	5.0250	-21.6126	5.0940	-13.6938
4.8190	-27.7412	4.8880	-28.7795	4.9570	-25.9762	5.0260	-22.0501	5.0950	-13.4075
4.8200	-27.6630	4.8890	-28.7053	4.9580	-25.7187	5.0270	-22.1724	5.0960	-13.1206
4.8210	-27.6767	4.8900	-28.3683	4.9590	-24.2401	5.0280	-22.2879	5.0970	-12.7408
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4.8230	-27.8078	4.8920	-28.1598	4.9610	-22.7200	5.0300	-22.6340	5.0990	-12.0907
4.8240	-28.0041	4.8930	-27.8990	4.9620	-21.9297	5.0310	-22.3352	5.1000	-11.9087
4.8250	-27.9297	4.8940	-27.8096	4.9630	-21.6907	5.0320	-23.3099	5.1010	-11.6703
4.8260	-28.1501	4.8950	-27.6711	4.9640	-20.5161	5.0330	-23.4235	5.1020	-11.5063
4.8270	-28.2768	4.8960	-27.5562	4.9650	-19.6078	5.0340	-23.0370	5.1030	-11.3407
4.8280	-28.1399	4.8970	-27.3696	4.9660	-18.6912	5.0350	-23.1688	5.1040	-11.4485
4.8290	-28.4984	4.8980	-27.2502	4.9670	-17.9597	5.0360	-23.2778	5.1050	-11.1364
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4.8310	-28.6564	4.9000	-27.0679	4.9690	-15.8121	5.0380	-22.9248	5.1070	-11.1450
4.8320	-28.7218	4.9010	-26.9469	4.9700	-15.0025	5.0390	-23.9246	5.1080	-11.1616
4.8330	-28.8078	4.9020	-26.7989	4.9710	-14.0858	5.0400	-23.4897	5.1090	-11.1564

5.1100	-11.6806	5.1790	-26.9541	5.2480	-30.8597
5.1110	-11.1096	5.1800	-27.1937	5.2490	-30.3430
5.1120	-11.5111	5.1810	-27.7050	5.2500	-29.9312
5.1130	-11.3785	5.1820	-27.6545	5.2510	-29.7738
5.1140	-11.9526	5.1830	-27.6273	5.2520	-29.6813
5.1150	-11.7103	5.1840	-27.7160	5.2530	-29.7376
5.1160	-11.9149	5.1850	-27.8415	5.2540	-29.9642
5.1170	-12.1239	5.1860	-27.8150	5.2550	-30.1154
5.1180	-12.7154	5.1870	-27.9709	5.2560	-30.2488
5.1190	-13.3695	5.1880	-28.2867	5.2570	-30.4655
5.1200	-13.6392	5.1890	-28.5633	5.2580	-30.6643
5.1210	-13.8751	5.1900	-28.6665	5.2590	-30.8705
5.1220	-13.7071	5.1910	-29.0684	5.2600	-31.0381
5.1230	-13.9339	5.1920	-29.6715	5.2610	-31.2976
5.1240	-14.6630	5.1930	-29.8393	5.2620	-31.7467
5.1250	-14.0006	5.1940	-30.2869	5.2630	-31.8286
5.1260	-15.2042	5.1950	-30.3635	5.2640	-31.9376
5.1270	-14.5145	5.1960	-30.6476	5.2650	-32.3684
5.1280	-15.3366	5.1970	-31.5379	5.2660	-32.5206
5.1290	-15.5788	5.1980	-31.8536	5.2670	-33.0639
5.1300	-15.3423	5.1990	-32.2217	5.2680	-33.1566
5.1310	-15.6285	5.2000	-32.0503	5.2690	-33.6830
5.1320	-16.3967	5.2010	-32.3535	5.2700	-33.8289
5.1330	-16.6210	5.2020	-33.1121	5.2710	-34.1227
5.1340	-16.9265	5.2030	-33.4372	5.2720	-34.5685
5.1350	-17.2870	5.2040	-33.3858	5.2730	-35.0556
5.1360	-17.6365	5.2050	-33.5522	5.2740	-35.2989
5.1370	-17.9041	5.2060	-33.3650	5.2750	-35.5337
5.1380	-17.9793	5.2070	-34.4485	5.2760	-35.8841
5.1390	-18.4724	5.2080	-34.6108	5.2770	-35.8009
5.1400	-18.7493	5.2090	-34.1790	5.2780	-35.5872
5.1410	-19.1795	5.2100	-34.3137	5.2790	-35.6828
5.1420	-19.1383	5.2110	-34.8825	5.2800	-35.5145
5.1430	-19.3644	5.2120	-34.9209	5.2810	-35.6944
5.1440	-19.6933	5.2130	-34.3751	5.2820	-34.9010
5.1450	-19.9499	5.2140	-34.3581	5.2830	-34.6521
5.1460	-20.3912	5.2150	-34.7652	5.2840	-34.0355
5.1470	-20.8617	5.2160	-33.7447	5.2850	-33.8125
5.1480	-21.1278	5.2170	-34.1769	5.2860	-33.5709
5.1490	-21.3085	5.2180	-34.0814	5.2870	-33.7964
5.1500	-21.4870	5.2190	-33.9148	5.2880	-33.2118
5.1510	-21.4223	5.2200	-34.3609	5.2890	-33.1271
5.1520	-21.6803	5.2210	-33.4428	5.2900	-32.9816
5.1530	-21.8049	5.2220	-33.3098	5.2910	-32.9811
5.1540	-21.9453	5.2230	-33.6518	5.2920	-33.1681
5.1550	-22.0930	5.2240	-33.9662	5.2930	-33.5704
5.1560	-22.3368	5.2250	-33.5249	5.2940	-32.7396
5.1570	-22.3333	5.2260	-33.4705	5.2950	-33.6525
5.1580	-22.5917	5.2270	-33.3967	5.2960	-32.7224
5.1590	-22.7287	5.2280	-33.3360	5.2970	-33.2260
5.1600	-22.9092	5.2290	-33.4030	5.2980	-33.8691
5.1610	-23.1240	5.2300	-33.1409	5.2990	-33.9299
5.1620	-23.2415	5.2310	-33.3363	5.3000	-34.0822
5.1630	-23.4850	5.2320	-33.2329		
5.1640	-23.5405	5.2330	-33.3009		
5.1650	-23.8561	5.2340	-33.4383		
5.1660	-24.1802	5.2350	-33.4927		
5.1670	-24.3828	5.2360	-33.4709		
5.1680	-24.6283	5.2370	-33.5411		
5.1690	-24.8509	5.2380	-33.5225		
5.1700	-25.1050	5.2390	-33.6041		
5.1710	-25.3189	5.2400	-33.6597		
5.1720	-25.4005	5.2410	-33.5368		
5.1730	-25.5322	5.2420	-33.2245		
5.1740	-25.6971	5.2430	-32.9552		
5.1750	-26.0832	5.2440	-32.3501		
5.1760	-26.2821	5.2450	-31.6618		
5.1770	-26.5534	5.2460	-32.4638		
5.1780	-26.2307	5.2470	-31.3522		

APPENDIX D

CYLINDER #1

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-56.4594	4.1650	-45.5586	4.2300	-21.8887	4.2950	-56.2758	4.3600	-56.1677
4.1010	-56.7896	4.1660	-45.0109	4.2310	-22.4976	4.2960	-56.5633	4.3610	-55.9488
4.1020	-56.4829	4.1670	-44.8892	4.2320	-23.2803	4.2970	-56.6575	4.3620	-56.2659
4.1030	-56.8005	4.1680	-44.1535	4.2330	-24.0817	4.2980	-57.0655	4.3630	-55.8981
4.1040	-57.1541	4.1690	-43.7878	4.2340	-24.8718	4.2990	-57.4103	4.3640	-56.3193
4.1050	-57.6656	4.1700	-43.1360	4.2350	-25.8110	4.3000	-57.5606	4.3650	-56.4827
4.1060	-57.4385	4.1710	-42.6675	4.2360	-26.4079	4.3010	-57.9262	4.3660	-56.9207
4.1070	-58.2838	4.1720	-41.7195	4.2370	-27.1347	4.3020	-58.5196	4.3670	-56.3099
4.1080	-57.4499	4.1730	-40.8838	4.2380	-27.6085	4.3030	-59.4067	4.3680	-56.4085
4.1090	-57.8505	4.1740	-42.1738	4.2390	-28.7895	4.3040	-59.9915	4.3690	-56.3161
4.1100	-57.9519	4.1750	-40.9488	4.2400	-29.4592	4.3050	-60.3952	4.3700	-55.7237
4.1110	-57.8772	4.1760	-41.4740	4.2410	-29.7370	4.3060	-59.3781	4.3710	-56.1299
4.1120	-58.1551	4.1770	-40.6257	4.2420	-30.2850	4.3070	-59.9383	4.3720	-56.2338
4.1130	-58.3621	4.1780	-40.7374	4.2430	-30.8624	4.3080	-59.5464	4.3730	-55.1465
4.1140	-57.6694	4.1790	-40.1028	4.2440	-31.3988	4.3090	-60.1061	4.3740	-55.3943
4.1150	-58.1021	4.1800	-40.5912	4.2450	-31.9310	4.3100	-60.2341	4.3750	-55.2593
4.1160	-57.8351	4.1810	-40.0141	4.2460	-32.0756	4.3110	-60.8943	4.3760	-54.8730
4.1170	-57.8309	4.1820	-40.1615	4.2470	-32.9708	4.3120	-61.1887	4.3770	-54.5025
4.1180	-57.8197	4.1830	-39.6499	4.2480	-33.4977	4.3130	-60.8583	4.3780	-54.2520
4.1190	-57.8750	4.1840	-39.9740	4.2490	-33.5757	4.3140	-62.2864	4.3790	-54.3855
4.1200	-57.7199	4.1850	-39.6833	4.2500	-34.4628	4.3150	-61.8019	4.3800	-54.0181
4.1210	-57.0435	4.1860	-38.9103	4.2510	-35.4811	4.3160	-61.8395	4.3810	-53.9582
4.1220	-57.0729	4.1870	-38.5797	4.2520	-35.0375	4.3170	-61.9614	4.3820	-53.9268
4.1230	-57.0489	4.1880	-38.0739	4.2530	-36.0044	4.3180	-63.0669	4.3830	-53.4007
4.1240	-56.8662	4.1890	-37.8665	4.2540	-36.3328	4.3190	-62.0684	4.3840	-53.6423
4.1250	-55.6962	4.1900	-37.3983	4.2550	-36.8303	4.3200	-62.0369	4.3850	-56.9175
4.1260	-56.5961	4.1910	-37.0298	4.2560	-37.3646	4.3210	-61.4902	4.3860	-55.1291
4.1270	-56.4336	4.1920	-36.8566	4.2570	-38.3397	4.3220	-61.9522	4.3870	-54.7169
4.1280	-56.4866	4.1930	-36.6754	4.2580	-38.7988	4.3230	-62.4580	4.3880	-54.7347
4.1290	-55.8965	4.1940	-36.2538	4.2590	-38.7603	4.3240	-62.0802	4.3890	-54.2854
4.1300	-55.9235	4.1950	-36.1376	4.2600	-39.2071	4.3250	-60.8938	4.3900	-54.4097
4.1310	-55.8001	4.1960	-35.6189	4.2610	-40.2901	4.3260	-62.1635	4.3910	-53.9252
4.1320	-55.9155	4.1970	-35.2559	4.2620	-40.6511	4.3270	-61.6683	4.3920	-53.8865
4.1330	-55.8839	4.1980	-34.8878	4.2630	-40.9689	4.3280	-60.3395	4.3930	-53.7523
4.1340	-55.7031	4.1990	-34.6248	4.2640	-41.3308	4.3290	-61.1464	4.3940	-54.0003
4.1350	-56.2543	4.2000	-34.2700	4.2650	-41.7153	4.3300	-60.4267	4.3950	-53.4854
4.1360	-57.2030	4.2010	-33.9613	4.2660	-42.5470	4.3310	-60.6173	4.3960	-53.6017
4.1370	-57.0183	4.2020	-33.5037	4.2670	-42.6501	4.3320	-60.6441	4.3970	-53.9922
4.1380	-57.2739	4.2030	-33.2447	4.2680	-43.4750	4.3330	-59.4292	4.3980	-53.8155
4.1390	-57.3832	4.2040	-32.9611	4.2690	-44.0294	4.3340	-59.5261	4.3990	-54.1827
4.1400	-57.8311	4.2050	-32.5695	4.2700	-44.8220	4.3350	-58.3856	4.4000	-54.0217
4.1410	-56.7179	4.2060	-32.2083	4.2710	-45.3015	4.3360	-57.9989	4.4010	-53.9429
4.1420	-55.7731	4.2070	-31.7978	4.2720	-45.2501	4.3370	-56.9497	4.4020	-53.9553
4.1430	-55.0444	4.2080	-31.4196	4.2730	-46.3053	4.3380	-55.6795	4.4030	-53.9099
4.1440	-54.1431	4.2090	-31.0706	4.2740	-46.7131	4.3390	-53.7896	4.4040	-54.3606
4.1450	-53.2502	4.2100	-30.6850	4.2750	-46.7155	4.3400	-52.9777	4.4050	-53.9527
4.1460	-52.6964	4.2110	-30.1667	4.2760	-47.8015	4.3410	-53.0088	4.4060	-54.0819
4.1470	-51.3755	4.2120	-29.6275	4.2770	-48.4709	4.3420	-51.8333	4.4070	-54.1926
4.1480	-50.8664	4.2130	-29.0742	4.2780	-48.6626	4.3430	-52.3271	4.4080	-53.8047
4.1490	-49.0313	4.2140	-28.4751	4.2790	-49.5433	4.3440	-51.8673	4.4090	-54.0284
4.1500	-48.8247	4.2150	-27.8668	4.2800	-48.9912	4.3450	-51.9133	4.4100	-54.0275
4.1510	-46.3034	4.2160	-27.2139	4.2810	-49.7471	4.3460	-51.6088	4.4110	-54.6891
4.1520	-45.3283	4.2170	-26.5601	4.2820	-49.4562	4.3470	-50.6627	4.4120	-54.6431
4.1530	-44.6996	4.2180	-25.9531	4.2830	-50.0291	4.3480	-50.7550	4.4130	-54.3971
4.1540	-44.6639	4.2190	-25.1460	4.2840	-49.8292	4.3490	-50.2065	4.4140	-55.4333
4.1550	-43.5833	4.2200	-24.3251	4.2850	-50.7576	4.3500	-50.2173	4.4150	-55.8909
4.1560	-43.2469	4.2210	-23.6768	4.2860	-51.7172	4.3510	-51.3247	4.4160	-55.8182
4.1570	-43.2498	4.2220	-22.9235	4.2870	-51.9357	4.3520	-50.9745	4.4170	-55.1084
4.1580	-43.1244	4.2230	-22.0123	4.2880	-53.4463	4.3530	-52.0403	4.4180	-56.0418
4.1590	-43.0950	4.2240	-21.5500	4.2890	-53.6289	4.3540	-52.3277	4.4190	-54.9659
4.1600	-43.3457	4.2250	-20.8830	4.2900	-54.8438	4.3550	-52.9880	4.4200	-55.5303
4.1610	-43.5520	4.2260	-20.6228	4.2910	-55.4771	4.3560	-53.3794	4.4210	-54.7015
4.1620	-44.7362	4.2270	-20.6406	4.2920	-55.9785	4.3570	-55.0189	4.4220	-55.7227
4.1630	-45.4236	4.2280	-20.8612	4.2930	-56.3125	4.3580	-55.2257	4.4230	-55.2311
4.1640	-45.6728	4.2290	-21.2238	4.2940	-56.3837	4.3590	-55.3319	4.4240	-55.0521

4.4250	-54.8331	4.4940	-49.4519	4.5630	-55.9174
4.4260	-55.0640	4.4950	-51.0267	4.5640	-55.7547
4.4270	-55.1317	4.4960	-51.0283	4.5650	-55.5495
4.4280	-55.7745	4.4970	-52.4422	4.5660	-55.3703
4.4290	-55.1827	4.4980	-52.5773	4.5670	-55.1135
4.4300	-55.5745	4.4990	-52.7491	4.5680	-55.2595
4.4310	-56.0931	4.5000	-53.2486	4.5690	-55.0164
4.4320	-56.4463	4.5010	-54.0964	4.5700	-54.6020
4.4330	-56.2379	4.5020	-54.3988	4.5710	-54.8119
4.4340	-55.1125	4.5030	-54.1589	4.5720	-54.5925
4.4350	-55.1329	4.5040	-54.3904	4.5730	-55.1227
4.4360	-54.9787	4.5050	-55.5660	4.5740	-55.1893
4.4370	-54.1294	4.5060	-56.1871	4.5750	-54.6001
4.4380	-53.4548	4.5070	-55.8991	4.5760	-54.3573
4.4390	-52.7741	4.5080	-55.8305	4.5770	-54.2122
4.4400	-51.9285	4.5090	-56.3168	4.5780	-54.0622
4.4410	-51.7642	4.5100	-55.7584	4.5790	-53.5564
4.4420	-50.8359	4.5110	-56.2737	4.5800	-53.7107
4.4430	-50.2971	4.5120	-57.0876	4.5810	-53.1690
4.4440	-49.2972	4.5130	-56.8743	4.5820	-53.5235
4.4450	-48.5041	4.5140	-56.7964	4.5830	-53.2709
4.4460	-47.6888	4.5150	-56.8573	4.5840	-53.5373
4.4470	-46.8454	4.5160	-57.1173	4.5850	-53.6633
4.4480	-46.5271	4.5170	-56.3332	4.5860	-53.7395
4.4490	-45.8623	4.5180	-57.0311	4.5870	-53.1506
4.4500	-45.2777	4.5190	-57.1478	4.5880	-53.7091
4.4510	-45.0571	4.5200	-56.5671	4.5890	-53.0205
4.4520	-44.4245	4.5210	-57.0935	4.5900	-52.8639
4.4530	-43.5261	4.5220	-56.8723	4.5910	-52.5073
4.4540	-42.8541	4.5230	-56.9251	4.5920	-52.8159
4.4550	-42.3034	4.5240	-56.5031	4.5930	-53.9711
4.4560	-41.5683	4.5250	-57.0234	4.5940	-53.7934
4.4570	-41.6345	4.5260	-56.7402	4.5950	-54.8503
4.4580	-40.9769	4.5270	-56.7687	4.5960	-54.6616
4.4590	-41.2951	4.5280	-56.6081	4.5970	-55.1203
4.4600	-40.2599	4.5290	-56.5262	4.5980	-54.7208
4.4610	-40.7508	4.5300	-56.0914	4.5990	-56.0020
4.4620	-40.3661	4.5310	-56.0000	4.6000	-55.0205
4.4630	-40.8415	4.5320	-56.0957		
4.4640	-40.5160	4.5330	-56.4707		
4.4650	-40.9634	4.5340	-55.7381		
4.4660	-41.2037	4.5350	-55.4648		
4.4670	-40.0721	4.5360	-55.0971		
4.4680	-41.0329	4.5370	-55.4637		
4.4690	-39.3410	4.5380	-55.2115		
4.4700	-40.4866	4.5390	-54.8391		
4.4710	-38.9576	4.5400	-54.9831		
4.4720	-40.0490	4.5410	-54.7141		
4.4730	-40.5639	4.5420	-54.6976		
4.4740	-39.3957	4.5430	-54.1179		
4.4750	-40.5510	4.5440	-53.9643		
4.4760	-40.1316	4.5450	-54.1009		
4.4770	-40.6607	4.5460	-54.2754		
4.4780	-40.6833	4.5470	-54.4446		
4.4790	-41.4319	4.5480	-54.4340		
4.4800	-41.6577	4.5490	-54.2977		
4.4810	-41.6647	4.5500	-54.3226		
4.4820	-42.3177	4.5510	-54.5981		
4.4830	-42.2576	4.5520	-54.7014		
4.4840	-42.8480	4.5530	-54.7223		
4.4850	-43.1059	4.5540	-55.4663		
4.4860	-43.9707	4.5550	-55.4741		
4.4870	-44.8211	4.5560	-55.0675		
4.4880	-45.0665	4.5570	-56.1942		
4.4890	-46.7053	4.5580	-56.0435		
4.4900	-46.9485	4.5590	-56.6485		
4.4910	-46.9017	4.5600	-56.4903		
4.4920	-47.4731	4.5610	-56.3630		
4.4930	-49.3081	4.5620	-56.2694		

CYLINDER #2

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-38.8024	4.1650	-30.2995	4.2300	-9.7453	4.2950	-31.5526	4.3600	-54.1381
4.1010	-39.0737	4.1660	-30.1194	4.2310	-10.4206	4.2960	-31.8074	4.3610	-53.5488
4.1020	-39.0017	4.1670	-30.3469	4.2320	-11.3212	4.2970	-32.0874	4.3620	-53.4273
4.1030	-39.3060	4.1680	-29.8235	4.2330	-12.2081	4.2980	-32.1361	4.3630	-53.5871
4.1040	-39.4273	4.1690	-29.6779	4.2340	-13.0150	4.2990	-32.3012	4.3640	-53.2397
4.1050	-39.6581	4.1700	-29.5054	4.2350	-14.0563	4.3000	-32.7089	4.3650	-52.8710
4.1060	-39.8042	4.1710	-29.3819	4.2360	-14.9073	4.3010	-32.7910	4.3660	-52.7023
4.1070	-39.8321	4.1720	-28.7732	4.2370	-15.7041	4.3020	-32.9817	4.3670	-52.2581
4.1080	-40.3150	4.1730	-28.7729	4.2380	-16.2217	4.3030	-33.2990	4.3680	-52.2417
4.1090	-40.2396	4.1740	-28.9688	4.2390	-17.1400	4.3040	-33.4896	4.3690	-51.8294
4.1100	-40.7935	4.1750	-28.5502	4.2400	-17.8161	4.3050	-33.7062	4.3700	-51.5892
4.1110	-40.5499	4.1760	-28.9981	4.2410	-18.3719	4.3060	-33.9565	4.3710	-51.4004
4.1120	-41.1984	4.1770	-28.6393	4.2420	-18.9266	4.3070	-34.2985	4.3720	-51.3027
4.1130	-40.8118	4.1780	-28.4823	4.2430	-19.4831	4.3080	-34.3836	4.3730	-50.3506
4.1140	-40.9938	4.1790	-28.1570	4.2440	-19.9495	4.3090	-34.4667	4.3740	-49.8737
4.1150	-41.1195	4.1800	-28.2203	4.2450	-20.4461	4.3100	-34.7899	4.3750	-49.5553
4.1160	-41.0065	4.1810	-28.1728	4.2460	-20.4534	4.3110	-35.2225	4.3760	-50.0537
4.1170	-40.8850	4.1820	-27.9792	4.2470	-21.3728	4.3120	-35.1564	4.3770	-49.9948
4.1180	-41.6892	4.1830	-27.7765	4.2480	-21.7234	4.3130	-35.3483	4.3780	-49.4355
4.1190	-41.4841	4.1840	-27.7778	4.2490	-21.6602	4.3140	-35.4737	4.3790	-48.6459
4.1200	-41.5076	4.1850	-27.4923	4.2500	-22.4971	4.3150	-35.7826	4.3800	-48.6193
4.1210	-40.9310	4.1860	-27.4511	4.2510	-22.8632	4.3160	-35.9755	4.3810	-47.0889
4.1220	-40.5191	4.1870	-27.2917	4.2520	-22.6757	4.3170	-36.1818	4.3820	-47.4031
4.1230	-40.0208	4.1880	-27.1352	4.2530	-23.4745	4.3180	-36.5006	4.3830	-46.4919
4.1240	-40.1289	4.1890	-26.9805	4.2540	-24.1992	4.3190	-36.5326	4.3840	-46.3248
4.1250	-39.8386	4.1900	-26.8594	4.2550	-23.9423	4.3200	-36.8728	4.3850	-46.1024
4.1260	-39.2038	4.1910	-26.6139	4.2560	-24.7460	4.3210	-36.9225	4.3860	-45.3414
4.1270	-39.4381	4.1920	-26.4535	4.2570	-24.5742	4.3220	-37.1199	4.3870	-45.8607
4.1280	-38.5229	4.1930	-26.2890	4.2580	-25.2044	4.3230	-37.1446	4.3880	-44.1963
4.1290	-38.1760	4.1940	-26.0793	4.2590	-24.9988	4.3240	-38.3739	4.3890	-44.0846
4.1300	-37.8470	4.1950	-25.9542	4.2600	-25.2333	4.3250	-38.0420	4.3900	-43.3378
4.1310	-37.4617	4.1960	-25.7160	4.2610	-25.4505	4.3260	-38.1677	4.3910	-42.7051
4.1320	-37.2165	4.1970	-25.4711	4.2620	-25.6555	4.3270	-38.8401	4.3920	-42.7876
4.1330	-36.8809	4.1980	-25.2650	4.2630	-25.8198	4.3280	-40.9217	4.3930	-41.5358
4.1340	-36.5372	4.1990	-25.1490	4.2640	-26.0340	4.3290	-39.4035	4.3940	-40.9369
4.1350	-36.5268	4.2000	-24.8299	4.2650	-25.9683	4.3300	-42.0701	4.3950	-40.6275
4.1360	-36.1524	4.2010	-24.6734	4.2660	-26.3471	4.3310	-40.6863	4.3960	-40.1651
4.1370	-36.1501	4.2020	-24.3480	4.2670	-26.5371	4.3320	-43.0756	4.3970	-40.4140
4.1380	-35.8798	4.2030	-24.1232	4.2680	-26.5510	4.3330	-42.6479	4.3980	-39.1836
4.1390	-35.4309	4.2040	-23.7948	4.2690	-26.8417	4.3340	-43.5317	4.3990	-39 02
4.1400	-35.2458	4.2050	-23.4427	4.2700	-27.1542	4.3350	-46.0803	4.4000	-39 21
4.1410	-34.9101	4.2060	-23.0775	4.2710	-27.2498	4.3360	-45.6521	4.4010	-38. 12
4.1420	-34.7707	4.2070	-22.7251	4.2720	-27.3407	4.3370	-46.9567	4.4020	-38.6577
4.1430	-34.4631	4.2080	-22.3792	4.2730	-27.5310	4.3380	-48.7665	4.4030	-38.7282
4.1440	-34.2994	4.2090	-22.0908	4.2740	-27.7556	4.3390	-49.3787	4.4040	-38.5161
4.1450	-34.0174	4.2100	-21.7149	4.2750	-27.8773	4.3400	-51.5623	4.4050	-38.9283
4.1460	-33.8291	4.2110	-21.3216	4.2760	-28.1077	4.3410	-52.2609	4.4060	-38.8373
4.1470	-33.6112	4.2120	-20.8501	4.2770	-28.2526	4.3420	-53.2801	4.4070	-40.0290
4.1480	-33.3697	4.2130	-20.3723	4.2780	-28.3880	4.3430	-53.9023	4.4080	-39.2324
4.1490	-33.1706	4.2140	-19.8490	4.2790	-28.5980	4.3440	-54.5180	4.4090	-39.6093
4.1500	-33.2294	4.2150	-19.3499	4.2800	-28.7396	4.3450	-55.2094	4.4100	-39.7257
4.1510	-32.5229	4.2160	-18.7622	4.2810	-28.9403	4.3460	-56.1125	4.4110	-39.9974
4.1520	-32.3192	4.2170	-18.1306	4.2820	-29.1016	4.3470	-56.1429	4.4120	-40.3208
4.1530	-32.6606	4.2180	-17.5191	4.2830	-29.2563	4.3480	-56.5619	4.4130	-42.6222
4.1540	-32.1929	4.2190	-16.7213	4.2840	-29.4134	4.3490	-56.5130	4.4140	-41.0205
4.1550	-31.9833	4.2200	-15.9573	4.2850	-29.5699	4.3500	-56.3615	4.4150	-42.6043
4.1560	-31.7986	4.2210	-15.1667	4.2860	-29.8685	4.3510	-56.0657	4.4160	-41.4817
4.1570	-31.6245	4.2220	-14.2666	4.2870	-29.9813	4.3520	-56.0189	4.4170	-43.0300
4.1580	-31.5151	4.2230	-13.3494	4.2880	-30.2593	4.3530	-55.9569	4.4180	-42.6907
4.1590	-31.2346	4.2240	-12.4199	4.2890	-30.4124	4.3540	-55.6023	4.4190	-45.2630
4.1600	-31.1212	4.2250	-11.4443	4.2900	-30.6806	4.3550	-55.7063	4.4200	-45.7894
4.1610	-30.9447	4.2260	-10.3995	4.2910	-30.8558	4.3560	-54.8253	4.4210	-43.9450
4.1620	-30.2572	4.2270	-9.8347	4.2920	-31.0279	4.3570	-54.8468	4.4220	-45.3779
4.1630	-30.9229	4.2280	-9.3092	4.2930	-31.1194	4.3580	-54.9751	4.4230	-45.0679
4.1640	-30.5186	4.2290	-9.4001	4.2940	-31.3444	4.3590	-53.8631	4.4240	-45.7567

4.4250	-45.3827	4.4940	-30.4969	4.5630	-46.1556
4.4260	-47.6403	4.4950	-30.6960	4.5640	-45.9746
4.4270	-46.0593	4.4960	-31.2102	4.5650	-46.0173
4.4280	-46.1027	4.4970	-32.2951	4.5660	-45.4071
4.4290	-47.8974	4.4980	-32.4841	4.5670	-45.7438
4.4300	-46.4731	4.4990	-33.0571	4.5680	-45.6069
4.4310	-47.1297	4.5000	-33.4362	4.5690	-45.2701
4.4320	-46.7145	4.5010	-34.5892	4.5700	-45.9063
4.4330	-47.1663	4.5020	-35.3413	4.5710	-45.7967
4.4340	-46.3644	4.5030	-35.2212	4.5720	-45.8726
4.4350	-45.9550	4.5040	-36.6249	4.5730	-45.6172
4.4360	-47.2932	4.5050	-39.0271	4.5740	-46.2972
4.4370	-45.6927	4.5060	-37.2198	4.5750	-46.0321
4.4380	-46.4095	4.5070	-40.2194	4.5760	-46.6909
4.4390	-46.1595	4.5080	-38.4535	4.5770	-46.6619
4.4400	-45.2723	4.5090	-41.0086	4.5780	-46.0228
4.4410	-44.6201	4.5100	-40.2191	4.5790	-46.9845
4.4420	-44.3890	4.5110	-40.9455	4.5800	-47.2203
4.4430	-44.1329	4.5120	-41.6995	4.5810	-47.7281
4.4440	-43.8987	4.5130	-42.3065	4.5820	-48.1379
4.4450	-43.2807	4.5140	-43.0677	4.5830	-47.8187
4.4460	-42.2953	4.5150	-44.0079	4.5840	-48.7679
4.4470	-41.7495	4.5160	-43.9484	4.5850	-47.7613
4.4480	-41.0865	4.5170	-44.1824	4.5860	-49.2868
4.4490	-39.9514	4.5180	-45.4979	4.5870	-48.2513
4.4500	-39.2982	4.5190	-45.4879	4.5880	-49.6691
4.4510	-38.2841	4.5200	-45.8104	4.5890	-49.1729
4.4520	-37.7692	4.5210	-46.2301	4.5900	-50.0105
4.4530	-36.8024	4.5220	-47.4186	4.5910	-50.1627
4.4540	-35.8234	4.5230	-47.7073	4.5920	-50.0303
4.4550	-35.5130	4.5240	-47.8326	4.5930	-50.3328
4.4560	-34.5244	4.5250	-48.9128	4.5940	-50.4457
4.4570	-34.2626	4.5260	-48.7349	4.5950	-50.5984
4.4580	-33.7199	4.5270	-49.2515	4.5960	-51.0719
4.4590	-33.4785	4.5280	-49.7372	4.5970	-51.3137
4.4600	-33.0420	4.5290	-50.1359	4.5980	-51.3800
4.4610	-32.4511	4.5300	-50.3860	4.5990	-52.0176
4.4620	-32.1748	4.5310	-51.3229	4.6000	-52.2054
4.4630	-32.1978	4.5320	-51.1579		
4.4640	-31.7187	4.5330	-51.9031		
4.4650	-31.6530	4.5340	-52.2277		
4.4660	-31.6639	4.5350	-52.6326		
4.4670	-31.4697	4.5360	-52.3391		
4.4680	-30.8752	4.5370	-52.6661		
4.4690	-30.7164	4.5380	-52.8582		
4.4700	-30.4002	4.5390	-52.3876		
4.4710	-30.4413	4.5400	-52.7031		
4.4720	-30.2435	4.5410	-52.4987		
4.4730	-30.1305	4.5420	-51.8724		
4.4740	-30.1317	4.5430	-51.8273		
4.4750	-29.9711	4.5440	-51.5527		
4.4760	-30.0103	4.5450	-50.8865		
4.4770	-29.7706	4.5460	-50.5430		
4.4780	-29.5870	4.5470	-50.1679		
4.4790	-29.5589	4.5480	-49.9491		
4.4800	-29.2544	4.5490	-49.7740		
4.4810	-29.2801	4.5500	-49.2306		
4.4820	-29.2312	4.5510	-49.3729		
4.4830	-28.9760	4.5520	-48.7543		
4.4840	-29.3561	4.5530	-48.7467		
4.4850	-29.1836	4.5540	-48.6128		
4.4860	-29.1253	4.5550	-49.1713		
4.4870	-29.2119	4.5560	-48.6173		
4.4880	-29.1960	4.5570	-48.0284		
4.4890	-29.3178	4.5580	-47.2868		
4.4900	-29.4535	4.5590	-46.7619		
4.4910	-29.6665	4.5600	-47.0379		
4.4920	-29.8454	4.5610	-46.4138		
4.4930	-30.3950	4.5620	-46.7023		

CYLINDER #3

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-24.2849	4.1650	-15.9667	4.2300	-12.0917	4.2950	-23.1343	4.3600	-26.8511
4.1010	-24.3143	4.1660	-15.6757	4.2310	-12.5021	4.2960	-23.2417	4.3610	-26.8068
4.1020	-24.3258	4.1670	-15.4341	4.2320	-12.7573	4.2970	-23.4460	4.3620	-26.7058
4.1030	-24.3215	4.1680	-15.5927	4.2330	-13.2488	4.2980	-23.5417	4.3630	-26.6555
4.1040	-24.3177	4.1690	-14.9318	4.2340	-13.3002	4.2990	-23.6534	4.3640	-26.5433
4.1050	-24.3487	4.1700	-14.2709	4.2350	-13.7152	4.3000	-23.9120	4.3650	-26.4042
4.1060	-24.3344	4.1710	-14.4239	4.2360	-14.2144	4.3010	-24.0101	4.3660	-26.2704
4.1070	-24.3140	4.1720	-13.7915	4.2370	-14.5112	4.3020	-24.1412	4.3670	-26.0412
4.1080	-24.3061	4.1730	-13.8845	4.2380	-14.3774	4.3030	-24.3267	4.3680	-25.8077
4.1090	-24.2030	4.1740	-13.9234	4.2390	-14.7984	4.3040	-24.4705	4.3690	-25.4292
4.1100	-24.1290	4.1750	-13.0581	4.2400	-15.0495	4.3050	-24.5748	4.3700	-24.9057
4.1110	-24.2260	4.1760	-13.0684	4.2410	-15.5578	4.3060	-24.7932	4.3710	-24.1423
4.1120	-24.2132	4.1770	-13.0482	4.2420	-15.7782	4.3070	-24.9988	4.3720	-22.9299
4.1130	-24.2327	4.1780	-12.7306	4.2430	-15.7104	4.3080	-24.9458	4.3730	-21.8805
4.1140	-24.2037	4.1790	-12.0902	4.2440	-15.9142	4.3090	-25.2632	4.3740	-28.0122
4.1150	-24.1516	4.1800	-11.9617	4.2450	-16.1362	4.3100	-25.3937	4.3750	-34.5772
4.1160	-24.1337	4.1810	-11.8265	4.2460	-16.2187	4.3110	-25.7596	4.3760	-33.3086
4.1170	-24.0879	4.1820	-11.3595	4.2470	-16.4653	4.3120	-25.6394	4.3770	-31.7608
4.1180	-24.0459	4.1830	-11.0375	4.2480	-16.6848	4.3130	-25.8560	4.3780	-30.9136
4.1190	-24.0340	4.1840	-10.7636	4.2490	-16.4303	4.3140	-25.9668	4.3790	-30.2502
4.1200	-23.9670	4.1850	-10.2857	4.2500	-17.3905	4.3150	-26.1889	4.3800	-30.1636
4.1210	-23.8493	4.1860	-10.0570	4.2510	-17.1380	4.3160	-26.3408	4.3810	-29.7137
4.1220	-23.7809	4.1870	-9.6686	4.2520	-16.7825	4.3170	-26.4759	4.3820	-29.6669
4.1230	-23.7061	4.1880	-9.2995	4.2530	-17.4847	4.3180	-26.6310	4.3830	-29.3740
4.1240	-23.6187	4.1890	-8.8956	4.2540	-17.5053	4.3190	-26.6380	4.3840	-29.3921
4.1250	-23.5648	4.1900	-8.4984	4.2550	-17.6367	4.3200	-26.6365	4.3850	-29.2987
4.1260	-23.4872	4.1910	-8.0240	4.2560	-17.7974	4.3210	-26.9910	4.3860	-29.2679
4.1270	-23.3911	4.1920	-7.5768	4.2570	-18.0757	4.3220	-27.1308	4.3870	-29.2595
4.1280	-23.2945	4.1930	-7.0694	4.2580	-18.2339	4.3230	-26.8166	4.3880	-29.3296
4.1290	-23.2395	4.1940	-6.5445	4.2590	-18.7049	4.3240	-27.4135	4.3890	-29.4447
4.1300	-22.9631	4.1950	-6.0408	4.2600	-18.5072	4.3250	-27.3329	4.3900	-29.4443
4.1310	-22.8549	4.1960	-5.4162	4.2610	-18.6127	4.3260	-27.2679	4.3910	-29.6490
4.1320	-22.7054	4.1970	-4.7935	4.2620	-18.7468	4.3270	-27.5190	4.3920	-29.7457
4.1330	-22.6537	4.1980	-4.0635	4.2630	-19.1422	4.3280	-27.7439	4.3930	-29.8835
4.1340	-22.4742	4.1990	-3.4921	4.2640	-18.9841	4.3290	-27.5795	4.3940	-29.6524
4.1350	-22.4984	4.2000	-2.6911	4.2650	-18.8956	4.3300	-27.6621	4.3950	-29.9414
4.1360	-22.1001	4.2010	-1.9233	4.2660	-19.1910	4.3310	-27.7587	4.3960	-29.8708
4.1370	-22.2803	4.2020	-1.1619	4.2670	-19.3698	4.3320	-27.7609	4.3970	-30.1866
4.1380	-22.1572	4.2030	-0.3763	4.2680	-19.2929	4.3330	-27.8673	4.3980	-30.0875
4.1390	-21.7756	4.2040	0.3833	4.2690	-19.6305	4.3340	-27.7236	4.3990	-30.2773
4.1400	-21.5095	4.2050	1.0732	4.2700	-19.8108	4.3350	-27.8468	4.4000	-30.1507
4.1410	-21.4894	4.2060	1.5015	4.2710	-19.8767	4.3360	-27.9365	4.4010	-30.1884
4.1420	-21.2154	4.2070	1.6330	4.2720	-19.8874	4.3370	-28.3825	4.4020	-30.2220
4.1430	-21.1113	4.2080	1.3795	4.2730	-20.1489	4.3380	-28.0430	4.4030	-30.3065
4.1440	-20.9384	4.2090	0.8011	4.2740	-20.3497	4.3390	-27.4176	4.4040	-30.3336
4.1450	-20.7005	4.2100	0.0763	4.2750	-20.3683	4.3400	-28.1296	4.4050	-30.3373
4.1460	-20.5087	4.2110	-0.7781	4.2760	-20.5622	4.3410	-28.1068	4.4060	-30.3561
4.1470	-20.2790	4.2120	-1.6107	4.2770	-20.6599	4.3420	-27.5996	4.4070	-30.6046
4.1480	-20.0763	4.2130	-2.5320	4.2780	-20.7823	4.3430	-28.0034	4.4080	-30.2684
4.1490	-19.8684	4.2140	-3.3128	4.2790	-20.9367	4.3440	-27.5825	4.4090	-30.4193
4.1500	-19.8425	4.2150	-4.1248	4.2800	-21.0384	4.3450	-27.4951	4.4100	-30.4996
4.1510	-19.1619	4.2160	-4.8977	4.2810	-21.1740	4.3460	-27.5931	4.4110	-30.5058
4.1520	-18.8996	4.2170	-5.6055	4.2820	-21.2868	4.3470	-27.9729	4.4120	-30.5137
4.1530	-18.9046	4.2180	-6.2890	4.2830	-21.3907	4.3480	-27.5063	4.4130	-30.5533
4.1540	-18.6645	4.2190	-6.9334	4.2840	-21.5178	4.3490	-27.4359	4.4140	-30.6311
4.1550	-18.7636	4.2200	-7.4355	4.2850	-21.6902	4.3500	-27.3902	4.4150	-30.8189
4.1560	-18.2484	4.2210	-8.1054	4.2860	-21.8343	4.3510	-27.2648	4.4160	-30.3883
4.1570	-18.2636	4.2220	-8.6133	4.2870	-22.0030	4.3520	-27.1256	4.4170	-30.7108
4.1580	-17.7209	4.2230	-9.0908	4.2880	-22.1723	4.3530	-27.1556	4.4180	-30.7601
4.1590	-17.4816	4.2240	-9.5647	4.2890	-22.3510	4.3540	-27.1294	4.4190	-30.8681
4.1600	-17.1817	4.2250	-9.9322	4.2900	-22.4961	4.3550	-27.1906	4.4200	-30.7393
4.1610	-17.0634	4.2260	-10.5566	4.2910	-22.5964	4.3560	-27.1028	4.4210	-30.3694
4.1620	-16.2271	4.2270	-10.9401	4.2920	-22.7342	4.3570	-27.1488	4.4220	-31.2730
4.1630	-16.4638	4.2280	-11.3033	4.2930	-22.8053	4.3580	-27.0114	4.4230	-30.7522
4.1640	-16.2971	4.2290	-11.7328	4.2940	-22.9615	4.3590	-26.9159	4.4240	-30.7815

4.4250	-30.3424	4.4940	-31.2279	4.5630	-33.5412
4.4260	-30.7479	4.4950	-31.1556	4.5640	-33.6587
4.4270	-31.2873	4.4960	-31.7592	4.5650	-33.6526
4.4280	-30.7487	4.4970	-31.5320	4.5660	-33.5861
4.4290	-30.5363	4.4980	-32.1997	4.5670	-33.7845
4.4300	-30.7027	4.4990	-31.8346	4.5680	-33.7727
4.4310	-30.6744	4.5000	-32.3128	4.5690	-33.7561
4.4320	-30.5286	4.5010	-32.1189	4.5700	-33.5742
4.4330	-30.5279	4.5020	-32.8419	4.5710	-33.8604
4.4340	-30.5356	4.5030	-32.0279	4.5720	-33.9321
4.4350	-30.1013	4.5040	-32.6957	4.5730	-33.8683
4.4360	-30.4812	4.5050	-32.6791	4.5740	-34.2212
4.4370	-29.9938	4.5060	-32.3412	4.5750	-34.0734
4.4380	-30.3131	4.5070	-32.8491	4.5760	-34.0704
4.4390	-30.3529	4.5080	-32.5293	4.5770	-34.1516
4.4400	-30.2902	4.5090	-33.0092	4.5780	-34.2601
4.4410	-30.4179	4.5100	-33.0792	4.5790	-34.2044
4.4420	-30.1968	4.5110	-32.8065	4.5800	-34.5062
4.4430	-30.2755	4.5120	-33.5526	4.5810	-34.3720
4.4440	-30.0720	4.5130	-34.2396	4.5820	-34.8197
4.4450	-30.1179	4.5140	-33.5640	4.5830	-34.9515
4.4460	-29.9779	4.5150	-33.8696	4.5840	-34.6240
4.4470	-29.8952	4.5160	-34.0188	4.5850	-34.7216
4.4480	-29.9076	4.5170	-33.5708	4.5860	-34.7363
4.4490	-29.8056	4.5180	-34.3379	4.5870	-34.8236
4.4500	-29.7030	4.5190	-35.0078	4.5880	-34.9014
4.4510	-29.6470	4.5200	-34.6582	4.5890	-35.1808
4.4520	-29.5628	4.5210	-34.7161	4.5900	-35.0968
4.4530	-29.4639	4.5220	-34.8897	4.5910	-35.2341
4.4540	-29.4067	4.5230	-35.1686	4.5920	-34.9897
4.4550	-29.3460	4.5240	-35.3164	4.5930	-35.4672
4.4560	-29.3701	4.5250	-35.5847	4.5940	-35.4745
4.4570	-29.3123	4.5260	-35.0713	4.5950	-35.2594
4.4580	-29.2404	4.5270	-35.9136	4.5960	-35.6956
4.4590	-29.2342	4.5280	-36.0842	4.5970	-35.7118
4.4600	-29.1716	4.5290	-35.8011	4.5980	-35.5124
4.4610	-29.2740	4.5300	-35.7991	4.5990	-35.9925
4.4620	-29.3029	4.5310	-36.2604	4.6000	-36.1648
4.4630	-29.2912	4.5320	-35.9571		
4.4640	-29.1807	4.5330	-36.0769		
4.4650	-29.3291	4.5340	-35.9735		
4.4660	-29.2079	4.5350	-35.8303		
4.4670	-29.2458	4.5360	-35.8528		
4.4680	-29.2691	4.5370	-35.9850		
4.4690	-29.2237	4.5380	-35.5383		
4.4700	-29.2690	4.5390	-35.6946		
4.4710	-29.3431	4.5400	-35.2404		
4.4720	-29.4556	4.5410	-35.2981		
4.4730	-29.2234	4.5420	-35.1555		
4.4740	-29.5787	4.5430	-35.0851		
4.4750	-29.4106	4.5440	-34.8313		
4.4760	-29.4626	4.5450	-34.7800		
4.4770	-29.5557	4.5460	-34.7469		
4.4780	-29.5481	4.5470	-34.6039		
4.4790	-29.5780	4.5480	-34.4259		
4.4800	-29.5334	4.5490	-34.3182		
4.4810	-29.7120	4.5500	-34.2042		
4.4820	-29.6650	4.5510	-34.0282		
4.4830	-29.8938	4.5520	-33.9155		
4.4840	-30.0811	4.5530	-33.8864		
4.4850	-30.0692	4.5540	-34.2778		
4.4860	-30.1488	4.5550	-33.9682		
4.4870	-30.3546	4.5560	-33.6088		
4.4880	-30.3391	4.5570	-33.6779		
4.4890	-30.5076	4.5580	-33.5710		
4.4900	-30.6287	4.5590	-33.9604		
4.4910	-30.7244	4.5600	-33.5561		
4.4920	-30.9830	4.5610	-33.8006		
4.4930	-30.9851	4.5620	-33.6049		

CYLINDER #4

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1000	-14.0324	4.1650	-6.2851	4.2300	-4.8293	4.2950	-15.0576	4.3600	-17.9234
4.1010	-14.0676	4.1660	-6.0602	4.2310	-5.1418	4.2960	-15.1857	4.3610	-17.9871
4.1020	-14.0687	4.1670	-5.7409	4.2320	-5.4068	4.2970	-15.3121	4.3620	-18.0084
4.1030	-14.0769	4.1680	-5.8869	4.2330	-5.7035	4.2980	-15.4634	4.3630	-18.0878
4.1040	-14.0955	4.1690	-5.2031	4.2340	-5.8580	4.2990	-15.5339	4.3640	-18.1337
4.1050	-14.0929	4.1700	-4.5228	4.2350	-6.2774	4.3000	-15.7163	4.3650	-18.1827
4.1060	-14.0665	4.1710	-4.6858	4.2360	-6.7090	4.3010	-15.8349	4.3660	-18.2808
4.1070	-14.0274	4.1720	-4.0251	4.2370	-6.7445	4.3020	-15.9939	4.3670	-18.2789
4.1080	-14.0570	4.1730	-3.7568	4.2380	-6.9874	4.3030	-16.1417	4.3680	-18.3604
4.1090	-14.0924	4.1740	-3.8094	4.2390	-7.2145	4.3040	-16.2900	4.3690	-18.4433
4.1100	-14.1403	4.1750	-3.2197	4.2400	-7.4504	4.3050	-16.4085	4.3700	-18.4998
4.1110	-14.0893	4.1760	-3.2276	4.2410	-7.6358	4.3060	-16.5426	4.3710	-18.5431
4.1120	-14.1444	4.1770	-2.9415	4.2420	-7.8375	4.3070	-16.8144	4.3720	-18.6309
4.1130	-14.1878	4.1780	-2.6238	4.2430	-8.3305	4.3080	-16.6764	4.3730	-18.6897
4.1140	-14.1797	4.1790	-2.1469	4.2440	-8.5211	4.3090	-16.9851	4.3740	-18.7529
4.1150	-14.1559	4.1800	-1.9758	4.2450	-8.4272	4.3100	-17.1275	4.3750	-18.7885
4.1160	-14.1637	4.1810	-1.6666	4.2460	-8.1487	4.3110	-17.4519	4.3760	-18.8604
4.1170	-14.0651	4.1820	-1.3009	4.2470	-8.7326	4.3120	-17.3784	4.3770	-18.9439
4.1180	-14.0730	4.1830	-0.8527	4.2480	-8.9404	4.3130	-17.5583	4.3780	-18.9470
4.1190	-14.1161	4.1840	-0.5392	4.2490	-8.6289	4.3140	-17.7004	4.3790	-18.8393
4.1200	-14.0812	4.1850	-0.1573	4.2500	-9.2023	4.3150	-17.8284	4.3800	-19.0588
4.1210	-13.9793	4.1860	0.2557	4.2510	-9.4172	4.3160	-17.9999	4.3810	-19.1923
4.1220	-13.9382	4.1870	0.7035	4.2520	-9.0845	4.3170	-18.1010	4.3820	-19.2355
4.1230	-13.9100	4.1880	1.1608	4.2530	-9.7227	4.3180	-18.2406	4.3830	-19.2404
4.1240	-13.8306	4.1890	1.6512	4.2540	-10.2317	4.3190	-18.3572	4.3840	-19.3105
4.1250	-13.8041	4.1900	2.1488	4.2550	-9.9259	4.3200	-18.3645	4.3850	-19.3818
4.1260	-13.7558	4.1910	2.7286	4.2560	-10.0826	4.3210	-18.5766	4.3860	-19.4480
4.1270	-13.6994	4.1920	3.2893	4.2570	-10.2007	4.3220	-18.6077	4.3870	-19.4544
4.1280	-13.5938	4.1930	3.9236	4.2580	-10.3885	4.3230	-18.4653	4.3880	-19.4562
4.1290	-13.5698	4.1940	4.5995	4.2590	-10.4954	4.3240	-18.6997	4.3890	-19.5770
4.1300	-13.4904	4.1950	5.2760	4.2600	-10.5982	4.3250	-18.7536	4.3900	-19.6703
4.1310	-13.3921	4.1960	6.0364	4.2610	-11.0231	4.3260	-18.4961	4.3910	-19.7403
4.1320	-13.3383	4.1970	6.8562	4.2620	-10.8733	4.3270	-18.7360	4.3920	-19.7653
4.1330	-13.2241	4.1980	7.6271	4.2630	-10.9910	4.3280	-18.7396	4.3930	-19.7984
4.1340	-13.1092	4.1990	8.4602	4.2640	-11.1228	4.3290	-18.3456	4.3940	-19.8523
4.1350	-13.1152	4.2000	9.2319	4.2650	-11.0397	4.3300	-18.5573	4.3950	-19.8944
4.1360	-12.8915	4.2010	9.9527	4.2660	-11.5315	4.3310	-18.2065	4.3960	-19.9140
4.1370	-12.9296	4.2020	10.4693	4.2670	-11.4744	4.3320	-18.1315	4.3970	-19.9534
4.1380	-12.7445	4.2030	10.6515	4.2680	-11.4797	4.3330	-18.4595	4.3980	-19.9724
4.1390	-12.4496	4.2040	10.5248	4.2690	-11.7505	4.3340	-18.3890	4.3990	-20.2169
4.1400	-12.2277	4.2050	10.1161	4.2700	-11.9177	4.3350	-18.3206	4.4000	-20.2275
4.1410	-12.0953	4.2060	9.4696	4.2710	-11.9929	4.3360	-18.2349	4.4010	-20.1059
4.1420	-11.8499	4.2070	8.6129	4.2720	-12.0702	4.3370	-18.2096	4.4020	-20.0533
4.1430	-11.6859	4.2080	7.6885	4.2730	-12.2296	4.3380	-18.1420	4.4030	-20.2461
4.1440	-11.4657	4.2090	6.7385	4.2740	-12.4143	4.3390	-18.0460	4.4040	-20.2038
4.1450	-11.2674	4.2100	5.8149	4.2750	-12.4619	4.3400	-17.9767	4.4050	-20.2408
4.1460	-11.0283	4.2110	4.9776	4.2760	-12.6353	4.3410	-17.9732	4.4060	-20.3022
4.1470	-10.8116	4.2120	4.1691	4.2770	-12.7364	4.3420	-17.8656	4.4070	-20.3419
4.1480	-10.5835	4.2130	3.4127	4.2780	-12.8429	4.3430	-17.7953	4.4080	-20.2497
4.1490	-10.3612	4.2140	2.7040	4.2790	-12.9886	4.3440	-17.7347	4.4090	-20.4317
4.1500	-10.1064	4.2150	2.0402	4.2800	-13.1142	4.3450	-17.7731	4.4100	-20.4748
4.1510	-9.6493	4.2160	1.4041	4.2810	-13.2731	4.3460	-17.8634	4.4110	-20.5248
4.1520	-9.3634	4.2170	0.8134	4.2820	-13.3623	4.3470	-17.8231	4.4120	-20.5772
4.1530	-9.3872	4.2180	0.2059	4.2830	-13.4414	4.3480	-17.7951	4.4130	-20.5936
4.1540	-9.1393	4.2190	-0.2849	4.2840	-13.5732	4.3490	-17.7657	4.4140	-20.6717
4.1550	-8.9227	4.2200	-0.8019	4.2850	-13.6853	4.3500	-18.0265	4.4150	-20.7557
4.1560	-8.6773	4.2210	-1.2937	4.2860	-13.9026	4.3510	-17.7438	4.4160	-20.4319
4.1570	-8.3924	4.2220	-1.7601	4.2870	-14.0159	4.3520	-17.7263	4.4170	-20.4531
4.1580	-8.1428	4.2230	-2.0187	4.2880	-14.1430	4.3530	-17.7529	4.4180	-20.8386
4.1590	-7.8929	4.2240	-2.6156	4.2890	-14.3050	4.3540	-17.7746	4.4190	-20.5088
4.1600	-7.6012	4.2250	-3.0337	4.2900	-14.4431	4.3550	-17.8147	4.4200	-21.2486
4.1610	-7.3769	4.2260	-3.4375	4.2910	-14.5763	4.3560	-17.8187	4.4210	-20.4423
4.1620	-6.6301	4.2270	-3.7132	4.2920	-14.7006	4.3570	-17.8273	4.4220	-20.9203
4.1630	-6.7902	4.2280	-4.1537	4.2930	-14.7470	4.3580	-17.9145	4.4230	-21.2692
4.1640	-6.6828	4.2290	-4.4089	4.2940	-14.9240	4.3590	-17.8289	4.4240	-20.9113

4.4250	-20.4258	4.4940	-21.2108	4.5630	-25.8927
4.4260	-21.3682	4.4950	-21.2150	4.5640	-25.9207
4.4270	-20.9226	4.4960	-21.4604	4.5650	-25.8700
4.4280	-20.8983	4.4970	-21.5866	4.5660	-25.7591
4.4290	-20.8466	4.4980	-21.7342	4.5670	-25.8802
4.4300	-20.8335	4.4990	-21.8740	4.5680	-25.5315
4.4310	-20.7963	4.5000	-21.7616	4.5690	-25.5956
4.4320	-20.8460	4.5010	-22.1492	4.5700	-25.4912
4.4330	-20.7401	4.5020	-22.2624	4.5710	-25.2448
4.4340	-20.3327	4.5030	-22.0904	4.5720	-25.3642
4.4350	-20.3291	4.5040	-22.2012	4.5730	-25.2951
4.4360	-20.7187	4.5050	-22.6334	4.5740	-25.2088
4.4370	-20.3285	4.5060	-22.3643	4.5750	-25.1063
4.4380	-20.6100	4.5070	-22.8323	4.5760	-25.0190
4.4390	-20.6020	4.5080	-22.9193	4.5770	-24.9388
4.4400	-20.5130	4.5090	-23.0008	4.5780	-24.8440
4.4410	-20.6545	4.5100	-23.0785	4.5790	-24.7718
4.4420	-20.4459	4.5110	-22.7210	4.5800	-24.7329
4.4430	-20.4055	4.5120	-23.2332	4.5810	-24.6831
4.4440	-20.3912	4.5130	-23.7937	4.5820	-24.6425
4.4450	-20.4056	4.5140	-23.4192	4.5830	-24.5933
4.4460	-20.3022	4.5150	-23.3971	4.5840	-24.5698
4.4470	-20.2251	4.5160	-24.0141	4.5850	-24.3644
4.4480	-20.2156	4.5170	-23.1375	4.5860	-24.5561
4.4490	-20.1241	4.5180	-23.8118	4.5870	-24.2831
4.4500	-20.0956	4.5190	-23.7929	4.5880	-24.5283
4.4510	-20.0397	4.5200	-23.8577	4.5890	-24.5997
4.4520	-20.0177	4.5210	-24.3123	4.5900	-24.5549
4.4530	-19.9437	4.5220	-24.0155	4.5910	-24.5282
4.4540	-19.9129	4.5230	-24.1343	4.5920	-24.2308
4.4550	-19.8732	4.5240	-24.2107	4.5930	-24.8917
4.4560	-19.7959	4.5250	-24.3506	4.5940	-24.6069
4.4570	-19.7627	4.5260	-24.1134	4.5950	-24.2136
4.4580	-19.7428	4.5270	-24.7785	4.5960	-24.6223
4.4590	-19.7783	4.5280	-24.7079	4.5970	-24.6172
4.4600	-19.7774	4.5290	-24.5896	4.5980	-24.1251
4.4610	-19.6902	4.5300	-24.8651	4.5990	-24.5777
4.4620	-19.7076	4.5310	-24.9851	4.6000	-24.7585
4.4630	-19.7213	4.5320	-25.0700		
4.4640	-19.7095	4.5330	-25.0584		
4.4650	-19.6985	4.5340	-25.1488		
4.4660	-19.7420	4.5350	-25.2103		
4.4670	-19.7088	4.5360	-25.3213		
4.4680	-19.7154	4.5370	-25.3779		
4.4690	-19.6951	4.5380	-25.4310		
4.4700	-19.7472	4.5390	-25.4457		
4.4710	-19.8324	4.5400	-25.5207		
4.4720	-19.7160	4.5410	-25.5765		
4.4730	-19.7315	4.5420	-25.5516		
4.4740	-19.8288	4.5430	-25.6609		
4.4750	-19.8770	4.5440	-25.7172		
4.4760	-19.9016	4.5450	-25.7192		
4.4770	-19.9160	4.5460	-25.7257		
4.4780	-19.8358	4.5470	-25.7319		
4.4790	-19.9874	4.5480	-25.6830		
4.4800	-20.0121	4.5490	-25.7472		
4.4810	-20.0822	4.5500	-25.7735		
4.4820	-20.1673	4.5510	-25.8295		
4.4830	-20.1495	4.5520	-25.7973		
4.4840	-20.5222	4.5530	-25.9978		
4.4850	-20.3480	4.5540	-26.0813		
4.4860	-20.4403	4.5550	-26.0571		
4.4870	-20.5302	4.5560	-25.9879		
4.4880	-20.5937	4.5570	-26.0436		
4.4890	-20.6865	4.5580	-25.8934		
4.4900	-20.7596	4.5590	-26.0144		
4.4910	-20.8937	4.5600	-25.9685		
4.4920	-20.9705	4.5610	-25.9173		
4.4930	-21.1055	4.5620	-26.0136		

APPENDIX E

CYLINDER #1

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)
4.1500	-47.2120	4.1825	-38.6520	4.2150	-27.1217	4.2475	-31.8309
4.1505	-48.3401	4.1830	-38.4949	4.2155	-26.7290	4.2480	-31.6337
4.1510	-47.2892	4.1835	-38.2142	4.2160	-26.4059	4.2485	-32.2268
4.1515	-47.9869	4.1840	-38.0710	4.2165	-26.0790	4.2490	-32.7923
4.1520	-46.4283	4.1845	-38.2381	4.2170	-25.6856	4.2495	-32.4948
4.1525	-46.6393	4.1850	-37.9404	4.2175	-25.3007	4.2500	-32.3052
4.1530	-45.6270	4.1855	-38.0018	4.2180	-24.9321	4.2505	-33.4856
4.1535	-47.5015	4.1860	-37.7824	4.2185	-24.5988	4.2510	-33.1752
4.1540	-45.6006	4.1865	-37.7975	4.2190	-24.1171	4.2515	-33.8756
4.1545	-47.1301	4.1870	-37.6404	4.2195	-23.6913	4.2520	-33.6105
4.1550	-45.5194	4.1875	-37.4444	4.2200	-23.2578	4.2525	-33.7766
4.1555	-44.8559	4.1880	-37.3981	4.2205	-22.8405	4.2530	-34.4397
4.1560	-44.7071	4.1885	-37.2396	4.2210	-22.4206	4.2535	-34.0525
4.1565	-44.6841	4.1890	-37.2130	4.2215	-22.1107	4.2540	-34.3237
4.1570	-44.5024	4.1895	-36.9227	4.2220	-21.7544	4.2545	-34.5385
4.1575	-43.9154	4.1900	-36.8668	4.2225	-21.3550	4.2550	-34.7120
4.1580	-44.2335	4.1905	-36.7366	4.2230	-21.0775	4.2555	-34.8731
4.1585	-44.5842	4.1910	-36.6176	4.2235	-20.5590	4.2560	-35.0471
4.1590	-44.1311	4.1915	-36.5116	4.2240	-20.2588	4.2565	-35.2039
4.1595	-44.1923	4.1920	-36.3423	4.2245	-19.9215	4.2570	-35.2627
4.1600	-43.6960	4.1925	-36.1987	4.2250	-19.8708	4.2575	-35.5544
4.1605	-43.1489	4.1930	-36.0588	4.2255	-19.2878	4.2580	-35.5402
4.1610	-42.5957	4.1935	-35.9855	4.2260	-19.3225	4.2585	-35.8463
4.1615	-43.0043	4.1940	-35.8640	4.2265	-19.2482	4.2590	-35.9878
4.1620	-42.7414	4.1945	-35.6926	4.2270	-19.2965	4.2595	-35.7765
4.1625	-42.4231	4.1950	-35.5291	4.2275	-19.3209	4.2600	-36.1796
4.1630	-42.8106	4.1955	-35.3738	4.2280	-19.3758	4.2605	-36.0759
4.1635	-42.5494	4.1960	-35.3681	4.2285	-19.6801	4.2610	-36.8496
4.1640	-42.3809	4.1965	-35.2149	4.2290	-20.0652	4.2615	-36.3481
4.1645	-41.5202	4.1970	-34.9594	4.2295	-20.2852	4.2620	-36.7794
4.1650	-41.8438	4.1975	-34.8555	4.2300	-20.6204	4.2625	-36.9002
4.1655	-41.2954	4.1980	-34.7174	4.2305	-20.9725	4.2630	-37.0805
4.1660	-41.6887	4.1985	-34.6835	4.2310	-21.3581	4.2635	-37.1661
4.1665	-41.7238	4.1990	-34.3491	4.2315	-21.7507	4.2640	-37.6807
4.1670	-40.9152	4.1995	-34.3402	4.2320	-22.1375	4.2645	-37.2583
4.1675	-40.9690	4.2000	-34.0842	4.2325	-22.5459	4.2650	-37.5653
4.1680	-41.0892	4.2005	-33.9279	4.2330	-22.8879	4.2655	-37.9527
4.1685	-40.9277	4.2010	-33.7812	4.2335	-23.2580	4.2660	-37.8205
4.1690	-40.9530	4.2015	-33.6135	4.2340	-23.7626	4.2665	-38.2434
4.1695	-41.4061	4.2020	-33.3711	4.2345	-24.1544	4.2670	-38.3975
4.1700	-40.5804	4.2025	-33.3091	4.2350	-24.5401	4.2675	-38.4906
4.1705	-40.4953	4.2030	-33.0381	4.2355	-24.9677	4.2680	-38.3364
4.1710	-40.1027	4.2035	-32.8432	4.2360	-25.2801	4.2685	-38.7326
4.1715	-40.5050	4.2040	-32.7007	4.2365	-25.6672	4.2690	-38.7415
4.1720	-40.0939	4.2045	-32.4616	4.2370	-25.9868	4.2695	-38.8347
4.1725	-40.5227	4.2050	-32.3627	4.2375	-26.3635	4.2700	-38.9034
4.1730	-39.8400	4.2055	-32.1311	4.2380	-26.4094	4.2705	-39.2472
4.1735	-39.5650	4.2060	-31.9516	4.2385	-27.0193	4.2710	-39.4463
4.1740	-39.8265	4.2065	-31.6797	4.2390	-27.0956	4.2715	-39.3681
4.1745	-39.6088	4.2070	-31.5166	4.2395	-27.3962	4.2720	-39.6120
4.1750	-39.3870	4.2075	-31.2347	4.2400	-27.6811	4.2725	-39.5659
4.1755	-39.7367	4.2080	-31.0056	4.2405	-27.8944	4.2730	-39.9101
4.1760	-40.0065	4.2085	-30.7027	4.2410	-28.2791	4.2735	-40.0570
4.1765	-39.0761	4.2090	-30.4899	4.2415	-28.7428	4.2740	-40.2345
4.1770	-39.6391	4.2095	-30.2522	4.2420	-29.0831	4.2745	-40.5413
4.1775	-39.2469	4.2100	-29.9983	4.2425	-29.3047	4.2750	-40.6881
4.1780	-39.1934	4.2105	-29.7690	4.2430	-29.6557	4.2755	-40.8979
4.1785	-38.8684	4.2110	-29.4874	4.2435	-29.5678	4.2760	-40.8573
4.1790	-38.9636	4.2115	-29.1895	4.2440	-30.4765	4.2765	-41.0064
4.1795	-39.3028	4.2120	-28.8883	4.2445	-30.3016	4.2770	-41.0685
4.1800	-39.1027	4.2125	-28.5692	4.2450	-30.3565	4.2775	-41.0763
4.1805	-38.8733	4.2130	-28.3701	4.2455	-30.4305	4.2780	-41.5423
4.1810	-39.0197	4.2135	-28.0027	4.2460	-30.7001	4.2785	-41.6227
4.1815	-38.8088	4.2140	-27.8023	4.2465	-30.9170	4.2790	-41.6553
4.1820	-38.4600	4.2145	-27.4411	4.2470	-31.5850	4.2795	-41.7705

CYLINDER #2

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)		
4.1500	-32.4394	4.1820	-28.7312	4.2140	-18.6226	4.2460	-20.8202	4.2780	-29.0944
4.1505	-32.6543	4.1825	-28.5364	4.2145	-18.2404	4.2465	-21.3783	4.2785	-29.2005
4.1510	-32.5127	4.1830	-28.5800	4.2150	-17.9378	4.2470	-21.7410	4.2790	-29.3315
4.1515	-32.3054	4.1835	-28.3769	4.2155	-17.6082	4.2475	-21.6078	4.2795	-29.4270
4.1520	-32.2008	4.1840	-28.3845	4.2160	-17.2795	4.2480	-21.6428		
4.1525	-32.6637	4.1845	-28.2105	4.2165	-16.9762	4.2485	-21.8987		
4.1530	-32.3061	4.1850	-28.0424	4.2170	-16.5624	4.2490	-22.4414		
4.1535	-32.2354	4.1855	-27.8729	4.2175	-16.1959	4.2495	-22.4671		
4.1540	-31.8459	4.1860	-27.8084	4.2180	-15.8879	4.2500	-22.7409		
4.1545	-32.1443	4.1865	-27.6430	4.2185	-15.4442	4.2505	-22.9570		
4.1550	-32.0104	4.1870	-27.5514	4.2190	-15.0957	4.2510	-23.1100		
4.1555	-32.0456	4.1875	-27.4639	4.2195	-14.6722	4.2515	-23.7106		
4.1560	-31.5076	4.1880	-27.4069	4.2200	-14.1747	4.2520	-23.4328		
4.1565	-31.7992	4.1885	-27.3272	4.2205	-13.8257	4.2525	-23.0730		
4.1570	-31.4962	4.1890	-27.2262	4.2210	-13.3302	4.2530	-24.2057		
4.1575	-31.4455	4.1895	-27.0731	4.2215	-12.8622	4.2535	-24.3523		
4.1580	-31.3809	4.1900	-26.9376	4.2220	-12.2651	4.2540	-23.9610		
4.1585	-31.2253	4.1905	-26.8447	4.2225	-11.7796	4.2545	-23.7565		
4.1590	-31.8295	4.1910	-26.7168	4.2230	-11.5924	4.2550	-24.7817		
4.1595	-31.1449	4.1915	-26.6327	4.2235	-11.0019	4.2555	-23.9109		
4.1600	-30.9162	4.1920	-26.5275	4.2240	-10.3814	4.2560	-24.0554		
4.1605	-30.9317	4.1925	-26.3123	4.2245	-10.1841	4.2565	-24.6228		
4.1610	-30.9110	4.1930	-26.1570	4.2250	-10.0780	4.2570	-24.8995		
4.1615	-30.9184	4.1935	-26.0497	4.2255	-9.3477	4.2575	-24.8821		
4.1620	-30.7291	4.1940	-25.9256	4.2260	-9.4995	4.2580	-25.0191		
4.1625	-31.2270	4.1945	-25.7960	4.2265	-9.0968	4.2585	-25.2630		
4.1630	-30.5645	4.1950	-25.7153	4.2270	-9.1008	4.2590	-25.0245		
4.1635	-31.2356	4.1955	-25.6908	4.2275	-9.0742	4.2595	-25.1351		
4.1640	-30.4141	4.1960	-25.6615	4.2280	-9.2612	4.2600	-25.4996		
4.1645	-30.3810	4.1965	-25.3828	4.2285	-9.5010	4.2605	-25.3798		
4.1650	-30.2456	4.1970	-25.2699	4.2290	-9.8949	4.2610	-26.1239		
4.1655	-30.6138	4.1975	-25.2131	4.2295	-10.2984	4.2615	-25.5489		
4.1660	-30.5497	4.1980	-25.0079	4.2300	-10.7056	4.2620	-26.0212		
4.1665	-30.1172	4.1985	-24.9488	4.2305	-11.1166	4.2625	-26.1858		
4.1670	-30.5128	4.1990	-24.7050	4.2310	-11.5584	4.2630	-26.2607		
4.1675	-30.0080	4.1995	-24.6738	4.2315	-12.0759	4.2635	-26.6411		
4.1680	-30.4557	4.2000	-24.4966	4.2320	-12.4424	4.2640	-26.4337		
4.1685	-30.2802	4.2005	-24.4280	4.2325	-13.0371	4.2645	-26.5742		
4.1690	-29.8912	4.2010	-24.3818	4.2330	-13.3117	4.2650	-26.6804		
4.1695	-30.6548	4.2015	-24.0245	4.2335	-13.7527	4.2655	-26.7637		
4.1700	-30.1366	4.2020	-23.8782	4.2340	-14.4904	4.2660	-26.8599		
4.1705	-30.1009	4.2025	-23.8486	4.2345	-14.7568	4.2665	-27.0044		
4.1710	-29.4445	4.2030	-23.5947	4.2350	-15.1792	4.2670	-27.0642		
4.1715	-29.3572	4.2035	-23.3741	4.2355	-15.5908	4.2675	-27.2375		
4.1720	-29.6705	4.2040	-23.2388	4.2360	-16.1378	4.2680	-27.2724		
4.1725	-29.7383	4.2045	-23.0157	4.2365	-16.3320	4.2685	-27.5199		
4.1730	-29.5566	4.2050	-22.8796	4.2370	-16.6158	4.2690	-27.3703		
4.1735	-29.6538	4.2055	-22.6055	4.2375	-17.0112	4.2695	-27.4774		
4.1740	-29.8455	4.2060	-22.4728	4.2380	-17.0703	4.2700	-27.7117		
4.1745	-29.8449	4.2065	-22.1808	4.2385	-17.4448	4.2705	-27.8240		
4.1750	-29.4579	4.2070	-22.0069	4.2390	-17.6790	4.2710	-27.8380		
4.1755	-29.1659	4.2075	-21.7562	4.2395	-18.0207	4.2715	-28.0135		
4.1760	-29.3057	4.2080	-21.5009	4.2400	-18.1899	4.2720	-28.0796		
4.1765	-29.0397	4.2085	-21.3129	4.2405	-18.5216	4.2725	-28.0784		
4.1770	-29.4718	4.2090	-21.0981	4.2410	-19.0190	4.2730	-28.1993		
4.1775	-29.0478	4.2095	-20.9355	4.2415	-19.3501	4.2735	-28.3520		
4.1780	-29.1009	4.2100	-20.6817	4.2420	-19.1716	4.2740	-28.3990		
4.1785	-29.0511	4.2105	-20.4361	4.2425	-20.0787	4.2745	-28.5565		
4.1790	-28.9733	4.2110	-20.1991	4.2430	-19.9821	4.2750	-28.6388		
4.1795	-28.8551	4.2115	-19.9726	4.2435	-20.2155	4.2755	-28.6945		
4.1800	-28.6775	4.2120	-19.6854	4.2440	-20.4307	4.2760	-28.7754		
4.1805	-28.8073	4.2125	-19.4797	4.2445	-20.7618	4.2765	-28.8397		
4.1810	-28.8900	4.2130	-19.1507	4.2450	-20.6574	4.2770	-28.9445		
4.1815	-28.8184	4.2135	-18.8527	4.2455	-20.8151	4.2775	-29.0127		

CYLINDER #3

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)		
4.1500	-17.2957	4.1820	-9.2739	4.2140	-1.6161	4.2460	-14.2240	4.2780	-18.7421
4.1505	-16.9826	4.1825	-9.0508	4.2145	-2.0157	4.2465	-13.9832	4.2785	-18.8090
4.1510	-17.2803	4.1830	-8.9332	4.2150	-2.4525	4.2470	-14.8537	4.2790	-18.9000
4.1515	-16.9528	4.1835	-8.7114	4.2155	-2.8227	4.2475	-14.6480	4.2795	-18.9593
4.1520	-16.8335	4.1840	-8.5874	4.2160	-3.1908	4.2480	-14.3156		
4.1525	-17.0110	4.1845	-8.4479	4.2165	-3.5330	4.2485	-14.4243		
4.1530	-16.4177	4.1850	-8.2111	4.2170	-3.8668	4.2490	-14.8594		
4.1535	-16.2944	4.1855	-8.0108	4.2175	-4.1923	4.2495	-14.8958		
4.1540	-16.4192	4.1860	-7.8315	4.2180	-4.5497	4.2500	-15.0487		
4.1545	-16.6142	4.1865	-7.5907	4.2185	-4.8296	4.2505	-15.5956		
4.1550	-16.2280	4.1870	-7.3907	4.2190	-5.1562	4.2510	-15.2283		
4.1555	-16.3926	4.1875	-7.1904	4.2195	-5.4550	4.2515	-15.3585		
4.1560	-15.6543	4.1880	-7.0283	4.2200	-5.6464	4.2520	-15.3872		
4.1565	-15.8035	4.1885	-6.8219	4.2205	-5.9117	4.2525	-15.0030		
4.1570	-15.3916	4.1890	-6.5981	4.2210	-6.1674	4.2530	-15.5527		
4.1575	-15.5558	4.1895	-6.3053	4.2215	-6.5327	4.2535	-15.6316		
4.1580	-15.4520	4.1900	-6.0904	4.2220	-6.8032	4.2540	-16.1787		
4.1585	-15.0602	4.1905	-5.8466	4.2225	-6.8911	4.2545	-15.3834		
4.1590	-15.2786	4.1910	-5.6084	4.2230	-7.2812	4.2550	-15.9232		
4.1595	-15.0528	4.1915	-5.3645	4.2235	-7.6600	4.2555	-15.5596		
4.1600	-14.5823	4.1920	-5.1353	4.2240	-7.7353	4.2560	-15.6380		
4.1605	-14.4553	4.1925	-4.8456	4.2245	-7.9574	4.2565	-16.5201		
4.1610	-14.4304	4.1930	-4.5779	4.2250	-8.1713	4.2570	-16.1692		
4.1615	-14.2981	4.1935	-4.3057	4.2255	-8.2083	4.2575	-16.2796		
4.1620	-14.5110	4.1940	-4.0175	4.2260	-8.7618	4.2580	-16.3512		
4.1625	-14.5182	4.1945	-3.7231	4.2265	-8.7917	4.2585	-16.4044		
4.1630	-13.8972	4.1950	-3.4076	4.2270	-8.8288	4.2590	-16.4328		
4.1635	-14.0653	4.1955	-3.1216	4.2275	-9.1724	4.2595	-16.5047		
4.1640	-14.0288	4.1960	-2.7996	4.2280	-9.3702	4.2600	-16.5800		
4.1645	-13.9076	4.1965	-2.4195	4.2285	-9.5271	4.2605	-16.6423		
4.1650	-13.7851	4.1970	-2.0745	4.2290	-9.7092	4.2610	-16.7102		
4.1655	-13.2256	4.1975	-1.7898	4.2295	-9.8996	4.2615	-16.7613		
4.1660	-13.1501	4.1980	-1.4849	4.2300	-10.1112	4.2620	-16.8318		
4.1665	-13.4296	4.1985	-1.1325	4.2305	-10.2344	4.2625	-17.1946		
4.1670	-12.8748	4.1990	-0.5878	4.2310	-10.4162	4.2630	-17.2454		
4.1675	-13.1803	4.1995	-0.2887	4.2315	-10.6140	4.2635	-17.0359		
4.1680	-13.4993	4.2000	0.1552	4.2320	-10.7014	4.2640	-17.3466		
4.1685	-13.3652	4.2005	0.6074	4.2325	-10.8689	4.2645	-16.9115		
4.1690	-12.8054	4.2010	0.9355	4.2330	-10.9411	4.2650	-17.4463		
4.1695	-12.7313	4.2015	1.4359	4.2335	-11.0817	4.2655	-17.4900		
4.1700	-12.5802	4.2020	1.8453	4.2340	-11.4653	4.2660	-17.5406		
4.1705	-12.4509	4.2025	2.1670	4.2345	-11.4737	4.2665	-17.5845		
4.1710	-11.9383	4.2030	2.5957	4.2350	-11.7813	4.2670	-17.6044		
4.1715	-11.8164	4.2035	2.8964	4.2355	-11.6051	4.2675	-17.7347		
4.1720	-12.0434	4.2040	3.2085	4.2360	-11.9062	4.2680	-17.7411		
4.1725	-11.9070	4.2045	3.5288	4.2365	-11.8540	4.2685	-17.7838		
4.1730	-12.0919	4.2050	3.6581	4.2370	-12.1751	4.2690	-17.6254		
4.1735	-11.3279	4.2055	3.8303	4.2375	-12.0964	4.2695	-17.7932		
4.1740	-11.7950	4.2060	3.8317	4.2380	-12.2467	4.2700	-17.9903		
4.1745	-11.3537	4.2065	3.8928	4.2385	-12.3567	4.2705	-18.0467		
4.1750	-11.2268	4.2070	3.7016	4.2390	-12.5000	4.2710	-18.0443		
4.1755	-10.8411	4.2075	3.5770	4.2395	-12.5907	4.2715	-18.1443		
4.1760	-11.2138	4.2080	3.3384	4.2400	-12.9680	4.2720	-18.0892		
4.1765	-10.5920	4.2085	3.0679	4.2405	-12.8417	4.2725	-18.1480		
4.1770	-10.6648	4.2090	2.6654	4.2410	-13.2213	4.2730	-18.2037		
4.1775	-10.5083	4.2095	2.2717	4.2415	-13.3860	4.2735	-18.2906		
4.1780	-10.4400	4.2100	1.8513	4.2420	-13.4400	4.2740	-18.3107		
4.1785	-10.1053	4.2105	1.4021	4.2425	-13.8831	4.2745	-18.4064		
4.1790	-10.1568	4.2110	0.9614	4.2430	-14.0059	4.2750	-18.4955		
4.1795	-10.0257	4.2115	0.5315	4.2435	-13.4807	4.2755	-18.5428		
4.1800	-9.7037	4.2120	0.0877	4.2440	-14.2301	4.2760	-18.5644		
4.1805	-9.7481	4.2125	-0.3548	4.2445	-14.0360	4.2765	-18.5909		
4.1810	-9.5811	4.2130	-0.7878	4.2450	-13.8264	4.2770	-18.6068		
4.1815	-9.5244	4.2135	-1.2071	4.2455	-13.8780	4.2775	-18.6725		

CYLINDER #4

f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)	f(GHz)	mag.(db)		
4.1500	-9.2277	4.1820	-1.1752	4.2140	2.6260	4.2460	-8.2477	4.2780	-12.5595
4.1505	-9.1170	4.1825	-0.8636	4.2145	2.2693	4.2465	-8.3280	4.2785	-12.6208
4.1510	-9.4247	4.1830	-0.7986	4.2150	1.9555	4.2470	-8.4873	4.2790	-12.7130
4.1515	-8.9053	4.1835	-0.5597	4.2155	1.7124	4.2475	-8.6325	4.2795	-12.7750
4.1520	-8.7991	4.1840	-0.3973	4.2160	1.3610	4.2480	-8.2781		
4.1525	-8.8867	4.1845	-0.1874	4.2165	1.0849	4.2485	-8.7394		
4.1530	-8.5714	4.1850	0.0256	4.2170	0.8216	4.2490	-9.2026		
4.1535	-8.3962	4.1855	0.2991	4.2175	0.5287	4.2495	-8.8017		
4.1540	-8.3557	4.1860	0.4707	4.2180	0.3016	4.2500	-8.9736		
4.1545	-8.4809	4.1865	0.7514	4.2185	0.0383	4.2505	-9.1004		
4.1550	-8.3646	4.1870	1.0121	4.2190	-0.1696	4.2510	-9.1407		
4.1555	-8.3559	4.1875	1.2530	4.2195	-0.4012	4.2515	-9.1950		
4.1560	-7.9171	4.1880	1.4394	4.2200	-0.7370	4.2520	-8.8358		
4.1565	-8.0363	4.1885	1.7023	4.2205	-0.9714	4.2525	-8.8434		
4.1570	-7.6009	4.1890	1.9709	4.2210	-1.0587	4.2530	-9.3631		
4.1575	-7.5808	4.1895	2.2901	4.2215	-1.3857	4.2535	-9.5205		
4.1580	-7.4859	4.1900	2.5714	4.2220	-1.6513	4.2540	-10.0225		
4.1585	-7.3190	4.1905	2.8587	4.2225	-1.7955	4.2545	-9.6237		
4.1590	-7.6109	4.1910	3.1594	4.2230	-2.2132	4.2550	-10.1500		
4.1595	-7.0089	4.1915	3.4647	4.2235	-2.3665	4.2555	-9.7602		
4.1600	-7.1900	4.1920	3.7583	4.2240	-2.4627	4.2560	-9.2721		
4.1605	-6.7209	4.1925	4.1095	4.2245	-2.5932	4.2565	-9.9236		
4.1610	-6.8315	4.1930	4.4462	4.2250	-2.8291	4.2570	-10.3743		
4.1615	-6.5842	4.1935	4.7734	4.2255	-3.0327	4.2575	-9.8982		
4.1620	-6.8352	4.1940	5.1457	4.2260	-3.2065	4.2580	-10.1187		
4.1625	-7.2092	4.1945	5.4972	4.2265	-3.2241	4.2585	-10.1743		
4.1630	-6.2516	4.1950	5.9044	4.2270	-3.5646	4.2590	-9.8503		
4.1635	-6.4141	4.1955	6.2281	4.2275	-3.7329	4.2595	-10.2649		
4.1640	-6.3655	4.1960	6.6725	4.2280	-3.9152	4.2600	-10.6624		
4.1645	-5.8166	4.1965	7.0594	4.2285	-4.0114	4.2605	-10.0593		
4.1650	-6.0980	4.1970	7.4725	4.2290	-4.3119	4.2610	-10.3564		
4.1655	-5.5485	4.1975	7.8355	4.2295	-4.4106	4.2615	-10.1202		
4.1660	-5.3972	4.1980	8.3349	4.2300	-4.5459	4.2620	-10.5633		
4.1665	-5.2627	4.1985	8.7344	4.2305	-4.6764	4.2625	-10.5902		
4.1670	-5.6125	4.1990	9.1495	4.2310	-4.8380	4.2630	-10.6968		
4.1675	-5.0672	4.1995	9.5297	4.2315	-4.9952	4.2635	-11.0374		
4.1680	-5.2933	4.2000	9.9235	4.2320	-5.1494	4.2640	-10.8171		
4.1685	-5.6693	4.2005	10.3048	4.2325	-5.2799	4.2645	-10.6184		
4.1690	-4.5826	4.2010	10.4973	4.2330	-5.3566	4.2650	-10.9433		
4.1695	-5.3977	4.2015	10.7927	4.2335	-5.4890	4.2655	-11.2378		
4.1700	-5.2557	4.2020	10.8811	4.2340	-5.7255	4.2660	-11.2874		
4.1705	-4.7202	4.2025	10.8982	4.2345	-6.0053	4.2665	-11.1351		
4.1710	-4.1996	4.2030	10.8949	4.2350	-6.0068	4.2670	-11.3620		
4.1715	-3.9406	4.2035	10.7415	4.2355	-5.9911	4.2675	-11.4932		
4.1720	-4.6532	4.2040	10.5172	4.2360	-6.4338	4.2680	-11.3330		
4.1725	-4.4985	4.2045	10.2592	4.2365	-6.2236	4.2685	-11.4026		
4.1730	-4.0041	4.2050	9.8715	4.2370	-6.7002	4.2690	-11.3631		
4.1735	-3.8726	4.2055	9.5289	4.2375	-6.4422	4.2695	-11.4407		
4.1740	-3.7050	4.2060	9.0614	4.2380	-6.4963	4.2700	-11.6461		
4.1745	-3.4539	4.2065	8.7063	4.2385	-6.6754	4.2705	-11.7135		
4.1750	-3.4174	4.2070	8.1929	4.2390	-6.7890	4.2710	-11.7183		
4.1755	-2.9180	4.2075	7.8061	4.2395	-6.8081	4.2715	-11.9001		
4.1760	-3.1049	4.2080	7.3767	4.2400	-6.9885	4.2720	-11.8509		
4.1765	-2.6749	4.2085	6.9431	4.2405	-7.0024	4.2725	-11.9074		
4.1770	-2.7935	4.2090	6.4941	4.2410	-7.1903	4.2730	-11.9336		
4.1775	-2.6656	4.2095	6.0606	4.2415	-7.6082	4.2735	-12.0688		
4.1780	-2.7628	4.2100	5.6373	4.2420	-7.3790	4.2740	-12.0960		
4.1785	-2.1828	4.2105	5.2121	4.2425	-7.6967	4.2745	-12.2228		
4.1790	-2.3921	4.2110	4.8221	4.2430	-7.9052	4.2750	-12.2816		
4.1795	-2.2432	4.2115	4.4319	4.2435	-7.5664	4.2755	-12.3271		
4.1800	-1.7105	4.2120	4.0460	4.2440	-8.0904	4.2760	-12.3637		
4.1805	-1.8770	4.2125	3.6710	4.2445	-8.1845	4.2765	-12.3984		
4.1810	-1.6848	4.2130	3.3158	4.2450	-8.1851	4.2770	-12.4017		
4.1815	-1.3722	4.2135	2.9699	4.2455	-8.0036	4.2775	-12.4585		

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